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Photo By Underwood & Underwood

"No Other Dreams Like Childhood Dreams; No Other Time Like Christmas."

Farm Property and Lightning*

Nature and Causes of Electric Discharges in the Atmosphere and the Means of Protecting Property From This Menace

By MORTON G. LLOYD

Of the United States Bureau of Standards, Washington, D. C.

AGRICULTURE occupies a peculiar position in that, more than any other productive enterprise, it has to deal with conditions which are very uncertain and which are not within the control of the producer. It is essentially a struggle with nature. Insect pests, plant and animal disease, and the vagaries of the weather all have to be contended with. Sunshine, moisture, temperature, hail and lightning all exert an enormous influence in the success of the farmer in producing a profitable crop. In some sections of the country the uncertainties of rainfall are overcome by the use of irrigation, but no substitute for sunshine or temperature control are available on a large scale. The damage done by hail can only be accepted when it comes and possible losses covered by insurance. Lightning also is beyond our control so far as its existence is concerned, but we are now in a position, through the application of what has been learned through experience and laboratory experiments, to very definitely control the damage which may result from it.

Photo By Underwood & Underwood

Millions of Volts Loose In the Air Ready to Rend and Destroy Any Object in Their Erratic Path

Properties and Causes of Lightning

MANY years ago, Benjamin Franklin identified lightning as an electrical discharge in the atmosphere and having determined its nature his ineisive mind suggested a means for reducing its ravages. Later investigations have indicated how lightning is caused and the magnitude of its electrical properties.

Lightning is the discharge through the air between cloud and cloud, or between cloud and earth, of charges of electricity which have accumulated upon a cloud. The exact mechanism for the accumulation of these electrical charges is not precisely known, but through recent investigations we can form a mental picture of how such a result may be brought about. Drops of water falling through the air undergo a certain amount of breaking up and when they are so separated into smaller particles the action is accompanied by the production of an electrical charge, one element of which remains upon the particles of water while the other or opposite element is carried off by the air. If there is a strong upward current of air the drops of water are not only broken up but are carried upward by this current. Upon reaching a region where there is less disturbance, such drops of water may combine again into drops of size sufficient to cause them again to fall through the air with a possibility of repeating the above process. It has been shown that drops having a diameter greater than 5.5 millimeters are unstable when falling through the air and will usually be broken up. Moreover, these small drops can not acquire a velocity in falling greater than 8 meters per second, so that if an upward current of air has a velocity greater than this the water will be carried upward and can not fall through it. This is, of course, due to the resistance of the air.

If it were possible to arrange for a drop of water to fall to the ground from the height of a cloud through a vacuum it would have an impact like a bullet and would do much more damage than a hail stone in air. Owing to the resistance of the air through which it falls, its velocity is held greatly in check so that Shakespeare could describe it as a "gentle rain from Heaven." Its velocity upon reaching the ground is no greater than if it were dropped from only a moderate height.

THE action of the air in thus retarding and actually carrying upward the water drops and in breaking them up, results in a cloud (which is nothing more than a collection of small water particles) acquiring an electrical charge while the opposite or corresponding charge is carried off by the air and may be delivered to another cloud. When the water drops from one of these clouds finally reach the ground the electrical charge is given to the earth. The conditions have thus been prepared for an electrical discharge between two clouds or between a cloud and the earth.

The magnitudes of these electrical charges are the greatest with which man has had any experience and are larger than any that have been artificially produced. It has been esti-

*Paper presented at the 32nd Annual Convention of the National Association of Mutual Insurance Companies, Washington, D. C., September 21, 1927. Publication approved by the Director of the National Bureau of Standards.

mated that the voltage difference between cloud and earth may reach a value as high as one hundred million volts and the electrical currents which constitute the discharges which we call lightning may amount to as much as 10,000 amperes. To put this in less technical terms that may give a more concrete idea of the magnitudes involved, it may be said that such a discharge represents sufficient energy to light one thousand 100-watt electric incandescent lamps for an hour.

The light and sound which we designate as lightning and thunder appear to be due to the expenditure of this energy in the air; this causes the air to be both heated and ionized so that it becomes luminous and so that a pressure wave is sent out similar to that due to an explosion. The reflection of this sound wave from the clouds and other surfaces causes the reverberations which usually accompany thunder.

Lightning as a Cause of Fire

WHEN an electrical discharge in the form of lightning strikes combustible material, it is very likely to be ignited and as a result the building may be set on fire. An electrical discharge usually takes place between the nearest points of the charged objects. When a discharge occurs between a cloud and the earth it is likely to be carried by objects which project above the earth's surface. Consequently, tall steeples, chimneys, trees, and other high objects are more likely to be struck than objects close to the ground. The Washington Monument in this city rises to a height of 555 feet and is naturally the recipient of many lightning strokes. The path of a stroke of lightning may be influenced also by the condition of the air. The hot gases from chimneys and the hot air rising from incompletely cured hay in a barn may offer a path for the electrical discharge better than surrounding air. Hence they may divert to such buildings a stroke that might otherwise occur at some neighboring point. Farm buildings frequently stand upon the prairie with nothing in their vicinity rising to a greater height from the ground and they thus present an excellent target for strokes of lightning.

Statistics show that while lightning is not to be listed as the largest cause of fire it is nevertheless responsible for great losses. A committee of the National Fire Protection Association has estimated that such losses in farm property exceed $20,000,000 annually and that the number of persons killed by lightning on farms is between 400 and 500 each year. In a group of states for which statistics were recently compiled, it was shown that 2.3% of the total number of fires were due to lightning. Since lightning is a seasonal occurrence in most parts of the country, nearly all of the lightning fires occur during the spring and summer, and probably during this portion of the year it is responsible for at least 5%. It would thus range during its season with two of the other greatest causes of fires, namely: smoking and matches, each of which was responsible for 5% of the total fire in the group of states referred to.

In certain parts of the country lightning is the greatest single cause of fire loss. This was true in Oklahoma, Iowa, and Kansas in 1925.

Photo By Underwood & Underwood

Lightning, However Beautiful As a Spectacle Always Has a Sinister Aspect

The prevalence of lightning differs greatly in different sections of the country. Such storms have their greatest frequency in Florida and least on the Pacific Coast. In the northern part of the country lightning storms occur mainly in the spring and summer months, but in the south they are quite frequent at all seasons of the year. The Missisippi Valley is a region in which lightning storms are not only quite numerous during certain months of the year but where they also attain a high degree of severity and are in consequence responsible for a considerable property damage and loss of life. Farm buildings in the prairie states are more exposed to this hazard than in hilly regions where the buildings are principally located in the valleys. Lightning losses of both persons and property appear to be greater in rural than in urban communities. The largest number of lightning fires occur in barns, stables, granaries, and dwelling houses. Other structures, such as oil tanks, may involve greater losses but the fires in these are not so numerous.

The Lightning Rod as a Remedy

AS mentioned above, Benjamin Franklin when he discovered the nature of lightning, proposed a method for preventing the damage which would otherwise be caused by it. His method was to provide a path for the stroke of lightning so that it would not enter a building or damage the materials of which it is constructed. This is done by installing an electrically conducting path of metal from the highest part of the structure to the ground, over which the discharge may pass without injury to the building. Experience has indicated how this can be done most successfully, but the method used today is essentially that proposed by Benjamin Franklin more than a century and a half ago. That the light-

(Continued on page 22)

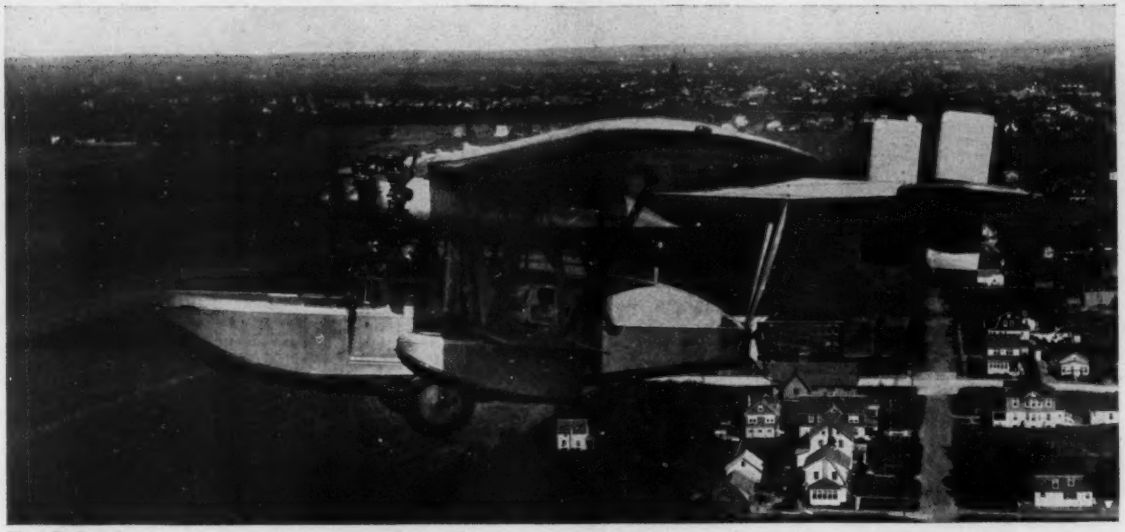


Photo By P. & A.

This Perhaps Is A Fore Glimpse of One Of the Most Common Incidents Of Travel In the Future

Development of Aviation Insurance

Review of Aviation Insurance in the United States

THE finally modified pilot's grading code was not complete as it appeared in the November number. For that reason the entire code is printed here.

PILOTS GRADING CODE, 1921

1. *Age*
   25 to 33 inclusive allow 50 points.
   Deduct 10 points for each year under 25.
   Deduct 7 points for each year over 33.
2. *Physical Condition*
   First class normal condition, allow 60 points.
   Use judgment in making deductions.
3. *Training*
   For completion of course at recognized field or school allow 75 points.
4. *Hours Flown* (including training, cross-country and commercial).

1000 hours and over	135 points
750-999	122 "
500-749	90 "
200-499	68 "
150-199	40 "
100-149	27 "
50- 99	4 "

5. *Cross Country* (Only)

50 hours and over	110 points
40-49	88 "
30-39	66 "
20-29	37 "
10-19	22 "
5- 9	7 "

6. *Commercial Schedule* (Only)

50 hours and over	170 points
40-49	136 "
30-39	102 "
20-29	57 "
10-19	34 "
5- 9	11 "

7. *Instructor* (30 hours minimum)
   For experience as instructor allow 65 points.

By STEPHEN B. SWEENEY

Assistant Professor of Insurance
Wharton School of Commerce
University of Pennsylvania

ARTICLE III
(PART II)

8. *Crashes* (unavoidable crashes not considered)
   For *no* crashes allow 230 points; for *one* crash allow 9 points; for *two* crashes not eligible for insurance.
9. *Types Flown*

One engined land plane	10 points
Two engined land plane	15 "
One engined sea plane	15 "
Two engined sea plane	20 "
Bomber	20 "
Mono / Tri / Multi	25 "
Total	105 "

Grades, Including Item No. 6

850 points or over	A
700 but less than 850	B
500 but less than 700	C
Less than 500	D & X

Grades, Excluding Item No. 6

706 points or over	A
581 but less than 706	B
415 but less than 581	C
Less than 415	D & X

The distinction between "D" and "X" pilots was made after a consideration of the individual circumstances which determined the low grading. "X" pilots were considered undesirable. "D" pilots, with possibly the same numerical rating as those classed as "X", were not looked on as undesirable because such uncontrollables as a bad landing field, faults of the engine or of the plane were the causes of their bad history. More than two hundred pilots were graded on the above basis. This seemed like a fair start toward scientific underwriting, especially when the work of examination and registration of pilots and aircraft was taken up by the Underwriters' Laboratories.

SOON after the organization of the National Aircraft Underwriters Association, negotiations were started to have the Underwriters' Laboratories inspect aircraft production methods and to register and classify aircraft. The Underwriters' Laboratories is an organization developed by many of the fire insurance companies of the United States for the inspection of and certification of building equipment, fire-fighting apparatus, et cetera. Its headquarters are at Chicago. The preliminary aviation work of the Laboratories was started in the latter part of 1920. A plan of cooperation between the Laboratories and the Association was finally worked out whereby the Laboratories agreed to provide: (1) A register of pilots, (2) a register of aircraft, and (3) certificates of air-worthiness of aircraft.

In addition to the pilot registration and grading program outlined above, the Laboratories provided:

1. Blanks for a physician's statement of surgical and medical examinations.

2. A certificate of registration to applicants found qualified.

3. A system of bulletins to Association members announcing the filing of pilot and plane applications, action thereon and cancellation of registration.

4. A board of inquiry to consider crashes.

5. Publication of rules of the air covering the pilot's conduct and responsibilities.

The certificate of pilot registration expired after twelve months, and previously if the pilot did not fly at least once in every four months. It was cancellable at any time for cause and was automatically suspended upon inquiry following a crash involving insurance.

Government Planes Are Leading the Way In Many Matters Pertaining To Endurance Tests and Modes and Manners of Flying

THE registration of aircraft was based on Lloyd's Aviation Register (mentioned in a previous article as being patterned after Lloyd's famous Maritime Register, which is so universally used by marine underwriters) and the number assigned followed the plan worked out by the International Aircraft Convention of the Peace Conference. The applicant for registry was required to give a description of the aircraft which was even more thorough than that required by the policies in use at the present time.

Certificates of airworthiness were issued to registered aircraft only after a thorough inspection and flight test by the representatives of the Laboratories. The hazard factors and safety elements of the aircraft were rated after a consideration of twenty-seven different groups of many items. The resident aviation engineer at the airport of inspection issued a Temporary Certificate of Airworthiness. The final certificate was later sent out from Chicago after the date had been carefully analyzed, checked up and compared with all other information there available.

At the end of the first two years of its activity, from July 1, 1921 to July 1, 1923, the Aviation Department of the Underwriters' Laboratories reported the following:

Aircraft for private use entered in Underwriters' Laboratories Aircraft Register 10

Aircraft for commercial use entered in Underwriters' Laboratories Aircraft Register.....25

Airworthiness Certificates issued 10

Certificates issued to registered pilots 39

Thirty-two resident aviation engineers located in the principal aviation centers of the United States were appointed representatives of the department to render service.

At the regular monthly meeting of the executive committee of the National Aircraft Underwriters' Association, August 12, 1921, the following decision was made, "to require on all policies issued from date that the pilot be regularly licensed by the Underwriters' laboratories and that any new make of aircraft be duly registered."

BESIDES the above most vital activities of the National Aircraft Underwriters' Association, the following were carried on:

1. Preparation of model specifications for hangars and landing fields, which specifications were made available to municipalities and private corporations interested.
2. Compilation of accident data.
3. Analysis of accidents with the view of measuring and placing the hazard.
4. Co-operation with the Bureau of Standards of the Federal Government in fixing standards for material, manufacture and operation.
5. Compilation of experience and formulation of rates and coverages.

All of the foregoing had the appearance of great possibilities. The Association, however, after reaching the height of its activity and membership in 1921 experienced a lingering death which was finally brought about by the absence of funds, the last bulletin of the secretary January 1, 1926, notifying the remaining members that the Association was disbanded as of that date. This final bulletin tersely summarized the situation as follows: "Because of present conditions in the field of aircraft

insurance it appears quite unnecessary for the National Aircraft Underwriters' Association to continue its existence. The aircraft lines are not being written by any of the present membership; and it does not appear that any of the companies will enter the field in the near future. On the other hand, there are a few companies outside of the Association who are writing the line at present, but they are not inclined to enter an organization which has for its object the standardization of rates and rules for the coverages afforded. . . ."

There was no uniformity as to coverages written by the members of the Association. Of course, the strictly fire companies could not enter the liability field and, likewise, the strictly casualty companies could not enter the fire and marine field. The various companies did not underwrite all of the hazards they were legally authorized to underwrite, a particularly unfavorable experience in a given line often keeping them out of it thereafter. According to the annual experience analysis, the following is the order of importance (judged by the number of risks); of the various lines written: fire, collision, windstorm, public liability, theft and property damage. Apparently other coverages were not written. The uniform practice during the days of the Association was to issue policies for six-months' periods, allowing refunds on the basis of the automobile short rate table. No refunds were allowed to reduce the earned premium below forty per cent of that originally charged.

An Explanation of the Fate of the National Aircraft Underwriters' Association.

PERUSAL of the bulletins, files and minutes of the Association gives the impression that there are two outstanding reasons for its decline and final disbandment. The Association was organized and its regulatory activities were made effective too late to offset the unfavorable experience that was built up by the early promiscuous insurance of gypsy-flyers. The general business depression begun in 1920 was felt by aircraft manufacturers and aviation enterprisers. The curtailment of their activities limited the field for insurance and gave the pioneer experience more than its true significance.

An examination of the members' combined experience for 1920 and 1921 bears out the first point. In 1920 the average fire loss on land planes was 5.4 per cent of the liability. The average collision (i. e. accidental damage) loss was 30.4 per cent of liability. In 1921 the experience was worse for fire but better for collision, the corresponding figures being 10.96 per cent and 13.1 per cent. The other types of risks showed a correspondingly high loss percentage of liability.

One member company in 1921 paid out $57,078 in losses and received only $26,895 in premiums to cover the losses. Another member suffered losses of over $12,747 on $1,016 premiums. It is little wonder that the companies gradually changed from active to associate membership. By the time the Underwriters' Laboratories were actually carrying on their inspection service there were only four member companies still writing aviation insurance in any form. June 1922 found only one member company still alive in the aviation field.

The insurance companies were originally attracted to the aviation insurance field by the great demand for coverage accompanying the sale

(*Continued on page 25*)

Photo By Underwood & Underwood

If War Should Come Again the Airplane Will Doubtless Play A Vastly More Important Part In the Proceedings Than It Has Ever Done Before. Above Shows Practice In Bombing A Building At Close Range

The experience or pure premium indicated above was higher than any premiums ever suggested by the Association in its rate advisory capacity. It was felt that higher premiums would drive away the business that was already rapidly diminishing before the above experience was tabulated.

Public Liability Insurance

Needed Protection Which Is Often Overlooked by the Business Man Who Has Not Thought the Situation Through

By C. A. KULP
Professor of Insurance.
Wharton School of Commerce.
University of Pennsylvania

PART II

II. *Promises of the Insured.*—These need merely be listed, all being self-explanatory. They are: (1) to give written notice of accidents; (2) to give notice of all claims or suits; (3) to cooperate with the company in the settlement of claims and suits, but not to assume obligations beyond immediate surgical relief without consent of the company.

III. *Rights of the Insurance Company.*—The company has the right: (1) to cancel, upon return pro rata of the unused portion of the premium; (2) the right to inspect; and (3) the right of subrogation, that is, if succession to the rights of the insured against third persons implicated in an accident resulting in a damage suit, to which the company is entitled by assumption of his obligations. This in third party insurance is a very valuable privilege of the company, often enabling it to recover, partially at least, payments made under the policy.

IV. *Rights of the Insured are*: (1) the basic right to indemnity, as already described; (2) the right to assign the policy; and (3) the right to cancel. If the insured cancels (unless he is retiring from business) the adjustment of premium is not pro rata, but according to a table of short rates, which penalizes the insured somewhat for his selection of a period of special hazard.

V. *Computation of the Amount of Premium.*—The premium for a general liability policy is usually based upon "the entire floor area and street frontage, and upon the number and character of elevators." Premium rates for area are per 100 square feet of floor space, excluding courts and basements unless used for sales, office or residential purposes; for street frontage, per foot of lineal frontage of the entire property line abutting on a street or public highway. Certain exceptions to this premium basis, however, are necessary because certain classes of risks are insured under this form for which area and frontage are not suitable indices of hazard. How these premiums are derived by the underwriters will be discussed presently.

THE following selected illustrations will indicate that the underwriters, in making rates for the various miscellaneous covers, select the basis of premium from the double standpoint of accuracy as measure of hazard and ease with which premium data may be collected:

(1) *Specific Charge,* as per elevator; per 100 persons admitted to baseball parks, per camper, canoe, or dog (general liability); per residence (private residence liability); per 1000 fillings (product liability); per team; per seat (theater liability).

(2) *Payroll.* Manufacturers' and contractors' ($100 the unit).

(3) *Gross Receipts.* Bathhouses, dance-halls and swimming pools (general liability) ($100 the unit).

(4) *Total Sales.* Produce liability ($100 the unit).

(5) *Area.* Private estates; advertising signs (general liability).

(6) *Total Cost.* Owners' and contractors' protective ($100 the unit).

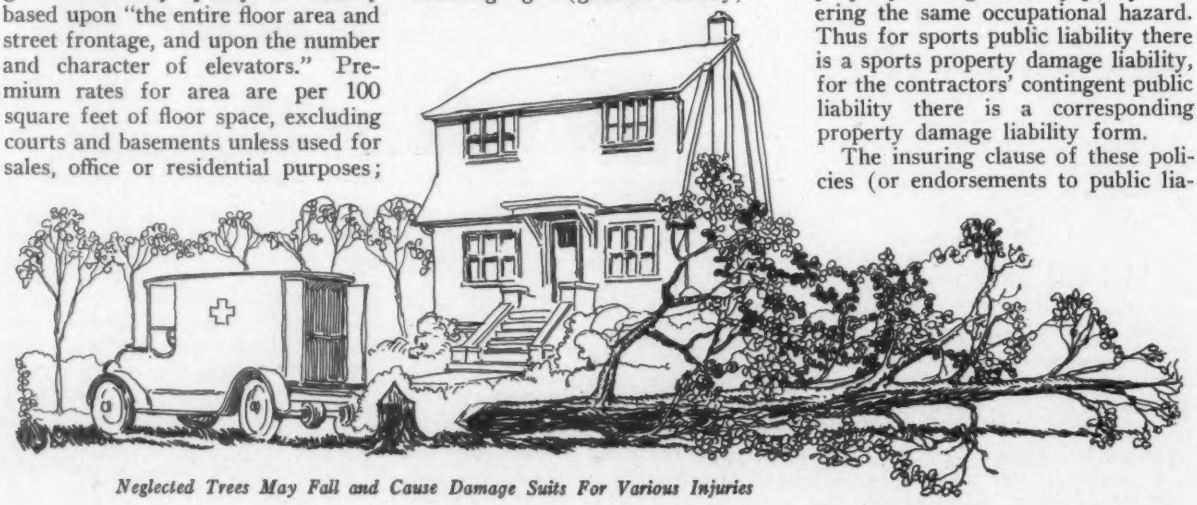
(7) *Individually Rated by Home Office.* Contractual.

The minimum premium, the least sum for which the company is willing to assume any risk, is of especial importance in the miscellaneous public liability lines. In general liability insurance, premiums run as low as .03 for area and .01 for frontage, which for a building 100x100 would produce a total premium of only $5. Manufacturers' liability premiums are also low, a great part of the business being sold at .2 per $100 payroll. Low premium rates are, in fact, characteristic of the line as a whole, and make it necessary for the company to establish an amount high enough to cover the minimum expense incurred in carrying any risk, and to charge this amount regardless of the result of the application of published rates to the premium basis. Thus in general liability the minimum is $8 for a building without, $18 for a building with elevators. In case of cancellation the company retains not less than the amount of the minimum premium.

Property Damage Liability Insurance.

EVERY one of the public liability forms, with the single exception of professional (which has no property damage liability hazard) has its counterpart and complement in a property damage liability policy covering the same occupational hazard. Thus for sports public liability there is a sports property damage liability, for the contractors' contingent public liability there is a corresponding property damage liability form.

The insuring clause of these policies (or endorsements to public lia-



Neglected Trees May Fall and Cause Damage Suits For Various Injuries

bility, as they are usually written) is the only part of the cover different from that described for the basic protection. The general liability endorsement promises indemnity against "claims in connection with the existence, maintenance or use of buildings or property on account of injury to or destruction of proprty, other than property owned, leased, occupied, or used by, or in the care, custody, or control of the assured or any of his employees." The only exceptions are for those property damage liability hazards which are the subject matter of engineering and water damage insurance. The policy limit on the usual risk is $1000, which may be increased by payment of additional premium.

Another form of protection is associated naturally with the miscellaneous public liability and property damage liability lines which is not third party insurance at all: elevator collision. It should be mentioned here because it belongs to elevator insurance, rather than in any arbitrary grouping of automobile and other collision covers. It is the only one of the liability lines for which there exists a collateral collision, or own damage insurance; as the term suggests it protects the insured from loss or damage to the elevators or other property of the insured, as a result of the collision of the elevator or anything carried thereon with any other object. The collision hazard, as may be supposed, is a minor one and only a small amount of this cover is sold. Excepted coverage is that of fire damage, and loss due to breakdown or damage to electrical machinery other than that a part of the elevator equipment. The basic amount of collision insurance is $1000, which may be increased.

Rate-Making Procedure.

THE making of rates for public liability and property damage liability lines ranges in precision from the comparative actuarial accuracy of elevator and general liability rates to the necessarily judgment basis of those on the newest covers. For illustrative purposes, the steps in rate-making for general liability will briefly be outlined; the same principles, and often the same details of technique apply generally to the remaining public liability and property damage liability covers as well. Rates for third party insurance (except workmen's compensation) are made by the National Bureau of Casualty and Surety Underwriters, an organization of stock casualty companies, to which the writer is indebted for a great deal of the following description of the making of rates.

Two main problems confront the rate-maker in this field. One is general, and characterizes third party insurance of all kinds: the problem or rather the problems resulting from the slow maturing of loss data and the consequent chronic out-of-dateness of experience, requiring the use of correction factors to bring experience to date. The other, while also complicating the making of rates for workmen's compensation and employers' liability, is most serious in miscellaneous public liability: that resulting from the paucity of data in a given state for certain classifications. The state is the natural territorial unit in third party insurance rate-making, because of differences in law and practice and in the attitude of court and jury in different states. (A classification is a group of individual risks on the basis of homogeneity of hazard.) In the other lines this difficulty may be overcome by combining the experience of different states, a process which itself creates still new problems for the rate-maker. In the miscellaneous public liability lines even this expedient, though resulting in a comparatively large exposure in terms of payroll or otherwise, is not sufficient to develop credible rate-making data. Losses are often so small in amount compared with exposure (index of hazard) that the rate-maker is forced to combine the experience of analogous, but none the less different classifications, which involves the use of considerable underwriting judgment.

The last general revision of rates was made in 1924, although revisions of rates for particular classifications are made as often as desirable or necessary. This is done by raising or lowering premiums for a classification just enough to make *actual* losses coincide with *expected* (that part of total or gross premium set aside for loss payments).

Photo By P. & A.

Explosion Is Another Hazard Which Is Frequently Unprovided For By Insurance

The main steps in rate-making are:

(1) Finding the United States pure premium for each classification.

(2) Calculating and applying the pure premium multiplier, the purpose of which is to correct the national pure premium for territorial difference, out-of-dateness and other factors. The result is a corrected state pure premium.

(3) Adding the expense loading to the corrected state pure premium. Result: the final or gross rate.

Numerous refinements are introduced into the rate-making plan at various stages, a description of which here is not necessary.

Step 1. The United States Pure Premium. The experience supplying the basic material for rates is loss and exposure data for the 3 years 1918-20, inclusive. The age of the experience points a major problem in liability rate-making: the length of time necessary for claims and suits to crystallize into dollars and cents of loss figures.

Let us suppose that the rate to be made is for a confectionery shop situated in Missouri outside of St. Louis. This risk is classified as in Rate Group (classification) 5. There are in the current manual of rates 23 such rate groups, ranging from No. 1, with the greatest hazard and the highest rated (five and ten cent stores) to No. 21, the lowest hazard and rate (vacant land). The rate-maker, for the moment ignoring the very real differences between court and cost conditions in different states, in order to secure a sufficient volume of experience adds together the loss figures for all confectionery risks in the entire country, then the square and lineal feet of exposure of all risks insured in all states, and divides the former by the latter. The result is a national pure premium, let us say, of .17 per 100 square feet of area and .04 per lineal foot of frontage. These amounts are known as pure premiums because they represent only the loss cost of general liability insurance; that is, including no expenses.

Step 2. The Pure Premium Multiplier. This is a factor whose purpose it is partly to correct the national pure premium for its defects of out-of-dateness and territorial inaccuracy, partly to add to the national pure premium certain expenses which are really a part of it. It has four parts:

(1) The territory differential.
(2) A projection factor.
(3) A claim service factor.
(4) An inspection service factor.

1. *The Territory Differential* is a sub-factor intended to correct the United States pure premium (which is an average for the whole country) for the difference in cost between an individual state and the average, this difference resulting particularly from the differing attitudes of the courts and to a certain extent, the differences in negligence statutes. There are 10 territories in the entire country, lettered from A to G. A is greater New York, G remainder of the country, principally the rural south and west. Missouri, excepting St. Louis, is Territory E. The degree of variation in cost between Missouri and the entire country may be measured, not by comparing differences for a given classification, but for all classifications together. The method is this: *Actual* losses for *all* classifications for Missouri for 1918-20 are compared with *expected* losses for Missouri for the same classifications and years. Expected losses are easily ascertained by multiplying the average national pure premium for *all* classifications times the grand total of exposure (total area and lineal frontage) for Missouri. The extent to which actual vary from expected losses determines the degree of correction necessary to make the average United States premium fit Missouri conditions. This is so because what has been done was to compare with Missouri actual loss results, the loss results which would be obtained if Missouri risks paid the average premium for the whole country. The resulting differential for Missouri territory is .90 (percent).

Professor
AVARD L. BISHOP
Of Yale University
Will Continue
His Series
Of Articles On
PROPERTY
and
CASUALTY
INSURANCE
in the
JANUARY NUMBER

2. *The Projection Factor.* This sub-factor corrects the national pure premium for our risk for another of its deficiencies, for out-of-dateness. Briefly, the method is to project the 1918-20 experience to the current level of costs, by comparing the average pure premium for all classifications in the entire country for the years 1918-20 with the average pure premium for the latest years for which there is available total but not classification experience (total losses and total area and frontage figures for all classifications). A factor of 1.05 (percent) indicates that old experience needs to be increased 5 percent to bring it to date.

3. *Claim Service Factor.* The expense of investigating and settling claims or suits is so closely related in nature and purpose to the payment of court awards and out-of-court settlements, that underwriters universally include claim expense as a part of pure premium. In this revision claim expense is found to equal 15.7 percent of pure premium.

4. *Inspection Expense Factor.* The cost of preventing losses is in every way analogous to pure premium cost, and also should be added to pure premium. In this revision, the factor is 1.069 percent.

Since the four sub-factors of the pure premium multiplier are always the same for any state, they are combined into a total pure premium multiplier, and applied directly to the national pure premium for each classification. Multiplying the four makes a result of 1.16 percent. Applying this to our national pure premium for area the result is: $.17 \times 1.16 = .1972$; for lineal frontage, $.04 \times 1.16 = .0464$. These results are the State pure premiums for confectionery stores in Territory E.

Step 3. Expense Loading Factor. This includes all the general expenses of running an insurance company: acquisition, home office, taxes, and underwriting profit: .375 percent of *gross* premium. Because these expenses are incurred and recorded in terms of gross premium, the following simple formula is necessary to add to pure premium a factor expressed as a percentage of gross:

$$\text{Gross Premium} = \frac{\text{Corrected State Pure Premium}}{1 - \text{loading } (.375)}$$

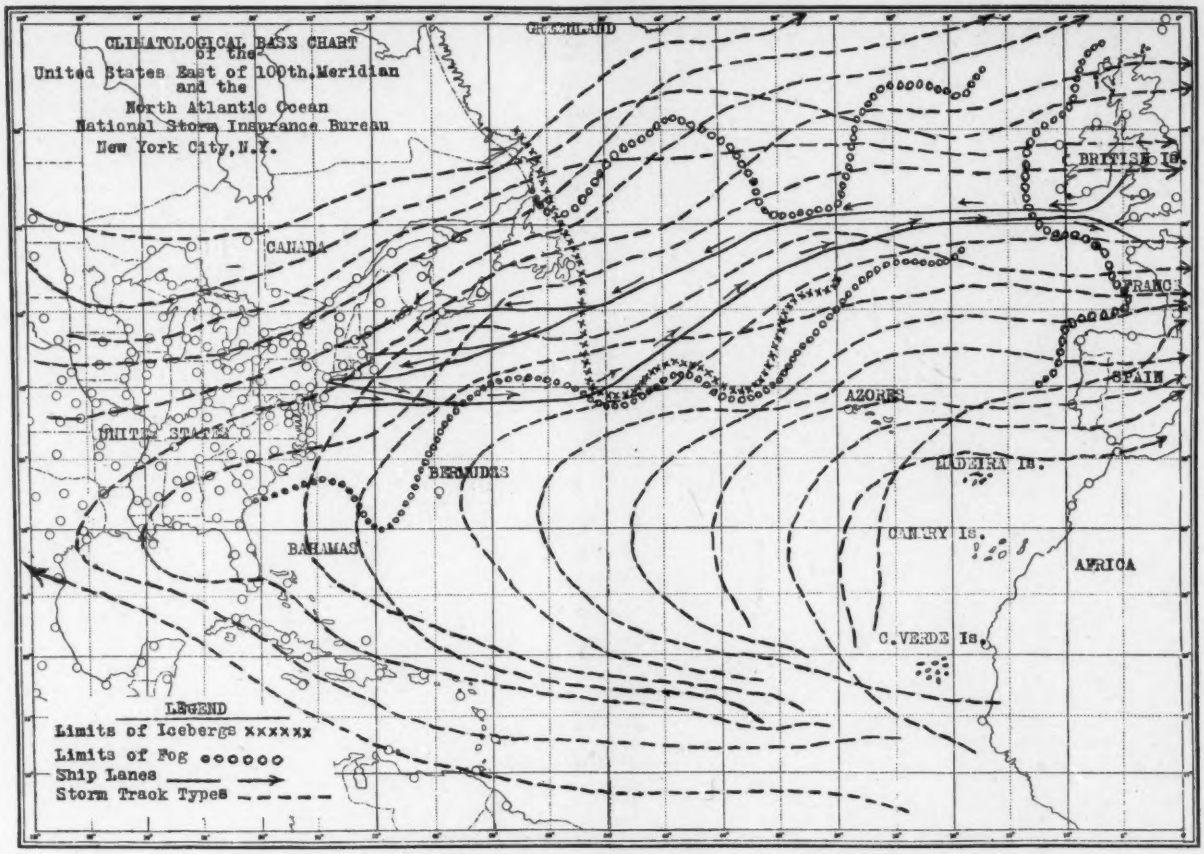
which substituting, results in:

$$\text{Gross Premium} = \frac{.1972}{.625} \text{ and } \frac{.0464}{.625}$$

or; .315 and .0744 for the gross area and frontage premiums, respectively. They (or rounded figures) are found in the manual and charged by the company on all confectionery risks in Missouri outside of St. Louis.

Inflammable Movie Films

"IMMINENCE of the Christmas shopping season," says a bulletin of the Chamber of Commerce of the United States, "has directed attention to a serious fire hazard involved in the distribution of inflammable motion picture films for use in toy projection machines, intended largely for the entertainment of children. Two types are manufactured: the so-called nitrate film which is highly inflammable and the acetate or 'safety' film which is combustible to about the same degree as ordinary paper. The nitrate film should be used only in places equipped with standard fire resistive projection booths. The much safer acetate film is being sold widely for educational and home use in the hands of inexpert operators."



FLYING WEATHER CHART OF THE NORTH ATLANTIC.

Illustrated by the correlation of the movement of Icebergs, the limits of Fog, location of Ship Lanes and the courses of Storm-Track Types for a period of 30 years, 1882-1912 inclusive. Data analyzed for each month of each year on special study charts and combined to produce this graphic representation, in what may be termed average values.

The North Atlantic is never free of adverse weather in some degree. May and June are the most favorable months for crossing from the West. There are no favorable months for crossing from the East. The southern route, by way of the Madeiras, Azores, Bermudas and Bahamas is the least hazardous, either from the West or from the East.

There is no month without fog and rarely a day of freedom from either fog or mist, obscuring the vision. Experience has shown that the proximity of ice is only less hazardous than rocks and shoals. This floating danger would be less formidable were it not for the fogs and mists which it often causes. There is no month without ice, but there is a falling off of 10% in January and September, 15% in October, 50% in November and 75% in December. The months of greatest frequency are from July to September inclusive. Weather types and critical changes are of daily and of monthly variation.

An Air Pilot without his appropriate Daily and Monthly Weather Flying Charts, and the expert knowledge of how to use them for the safety of himself and ship, should be rated a dangerous hazard and ineligible for insurance.

The Rainfall Hazard

Fundamental Factors Related to This Weather Risk and Their Practical Application to Underwriting

By COLONEL JOHN P. FINLEY
Consulting Meteorologist and Manager National Storm Insurance Bureau, New York City

Article IV. Rainfall Diurnals.

NINTH SECTION

THE real path of one body around another in space is called its orbit. Therefore, the path of our globe around the sun is called the earth's orbit. For a long time, during the infancy of astronomy, it was believed that the earth was the center, around which the universe wheeled. Centuries of investigation were required to correct this error, which had its origin in the fact that too great importance was attached to the earth because upon it all animal and vegetable life, known to man existed. The true relations between real and apparent motions had to be worked out through a higher development of the science of mathematics. When that was accomplished it was found that the earth had two motions, one axial and the other orbital. That the apparent motion of the sun became the real motion of the earth, for as the earth revolves around the sun, the latter will seem to perform a revolution among the fixed stars.

The axial motion or movement is circular and the orbital elliptical. The former provides the succession of day and night and affords a very convenient means for measuring time. Everything is based on the absolute uniformity of this rotation. The deviations, if any, are nearly in-

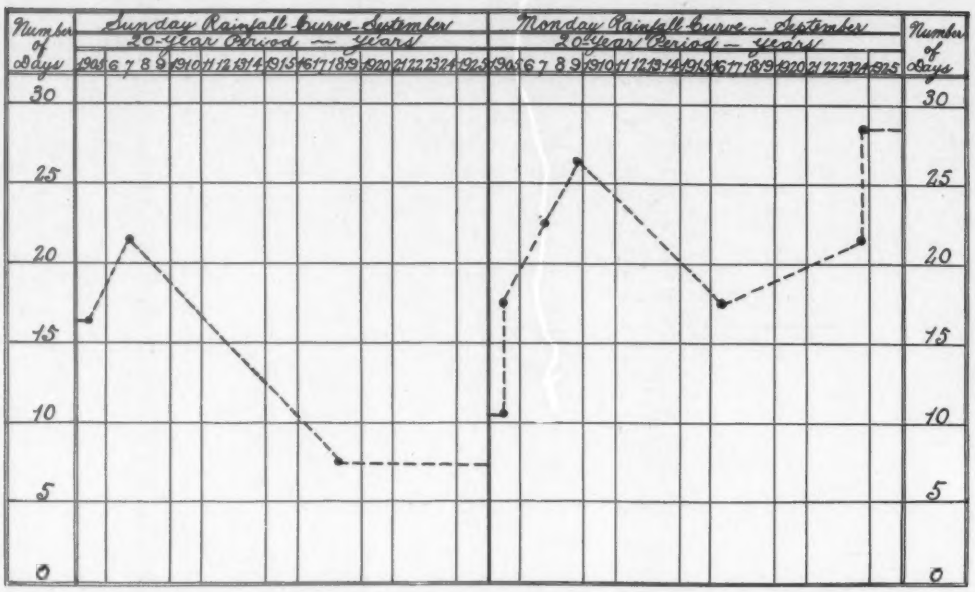


PLATE No. VIII.— Daily rainfall curves— September. For the crucial-7-hour-hazard 2 P.M. to 9 P.M. and the crucial-wetting-loss-hazard of a tenth of an inch or more.

REMARKS

The days and years of no rainfall are indicated by the horizontal intervals between the circular dots (●) marking the sections of the curve-graph lines. Horizontal amplitude shows yearly range and variation. Vertical amplitude shows daily range and variation. September indicates the passing from summer weather types to autumn weather types and the effect of the introduction of the West Indian Hurricane Season.

NOTE A—Observations made by Automatic Self-Recording Raingage and checked with a Non-Measurement Non-Recording Raingage. Both U. S. Weather Bureau standard instruments located on the roof of the Station Building, New York City, 394 feet above sea-level. The circular dots (●) in the rainfall curves mark the day and year of measured and recorded precipitation. The curve-graph lines are formed on a uniform basis and progress from left to right in regular sequence.

appreciable. The slight retardation of its rotation at one period seems to be counterbalanced by an equal acceleration at another. If irregularities actually do exist they probably cancel each other in the long run and leave the day invariable in length. Uniformity of the earth's rotation has been critically investigated by Prof. Newcomb, one of the world's greatest astronomers and matheticians, who found that no change in the length of the day, as great as the one-one-thousandth of a second, in one thousand years, had been discovered.

The orbital movement of the earth follows an ellipse, the eccentricity of which is only about 1/60 part of the sun's distance from the center of the orbit. The two determining points of the ellipse are called its foci and both of them are situated in the major axis. If the center and both foci are merged in a single point the ellipse becomes an actual circle, or one of its limits, the other being a straight line, when the foci recede from the center and approach the ends of the major axis. The longest radius vector of the earth's ellipse is called aphelion, and the shortest radius vector, perihelion. Together these two radii vectors make up the major axis of the orbit, or the line of apsides. Not only does this line revolve, but the obliquity of the ecliptic changes slightly, and even the eccentricity of the earth's orbit varies slowly from age to age. These facts were all known more than a century ago, but as to the eccentricity, it was not known whether it might not tend to go on increasing for ages. Should it do so atmospheric precipitation would cease and the earth become parched at every perihelion passage, and congealed on retreating to aphelion. It appeared, under these circumstances, as among the possibilities, that all life on our planet might

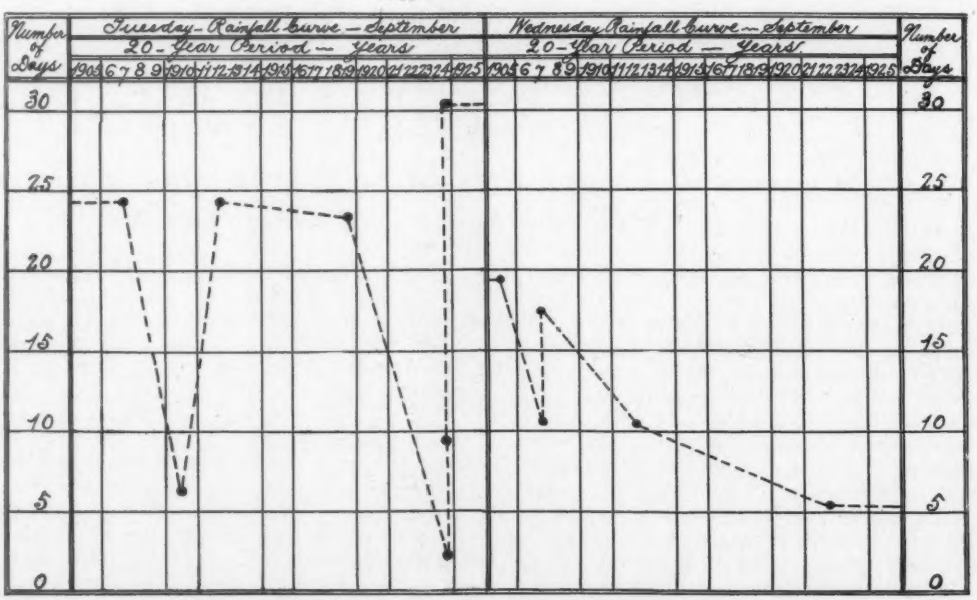


PLATE No. IX.— Daily rainfall curves— September. For the crucial-7-hour-hazard 2 P.M. to 9 P.M. and the crucial-wetting-loss-hazard of a tenth of an inch or more.

REMARKS

The days and years of no rainfall are indicated by the horizontal intervals between the circular dots (●) marking the sections of the curve-graph lines. Horizontal amplitude shows yearly range and variation. Vertical amplitude shows daily range and variation. September indicates the passing from summer weather types to autumn weather types and the effect of the introduction of the West Indian Hurricane Season.

See Note A—Plate VIII

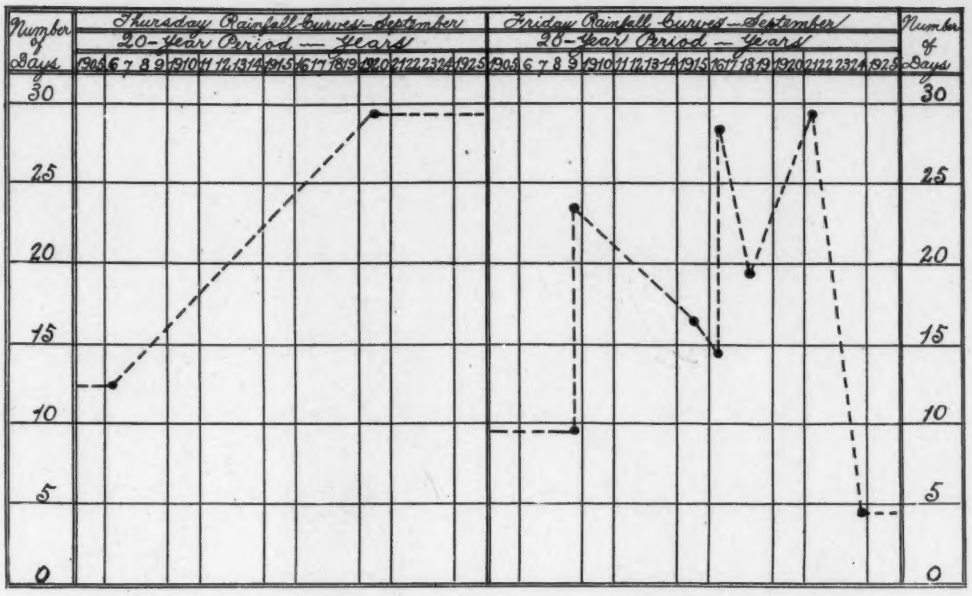


PLATE No. X—Daily rainfall curves—September. For the crucial-7-hour-hazard 2 P.M. to 9 P.M. and the crucial-wetting-loss-hazard of a tenth of an inch or more.

REMARKS

The days and years of no rainfall are indicated by the horizontal intervals between the circular dots (●) marking the sections of the curve-graph lines. Horizontal amplitude shows yearly range and variation. Vertical amplitude shows daily range and variation. September indicates the passing from summer weather types to autumn weather types and the effect of the West Indian Hurricane Season.

See Note A—Plate VIII

thus be destined to abruptly terminate, although remotely in the future. In this connection LaGrange, a great French mathmetician, discovered, in the latter part of the 18th century, that although the earth's orbit certainly becomes more and more eccentric for thousands of years, this process must finally stop, in which event the orbit begins to approach more and more nearly the circular form, during the succeeding period of thousands of years. The eccentricity, now near the average value, will be decreasing for the next 24,000 years. It was disclosed by these calculations that the obliquity of the ecliptic simply fluctuates through a narrow range on either side of an average value. These slight changes are technically known as secular variations, because they consume very long period of time in completing their cycle. The mean or average distance, and with it the time of revolution round the sun, alone remain invariable.

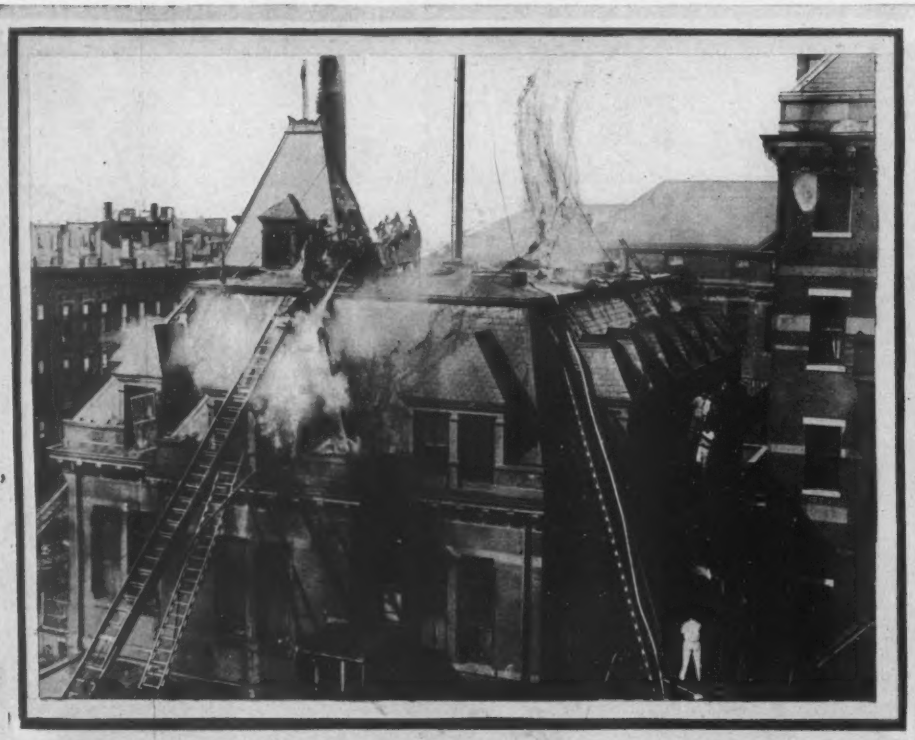
BY taking the average of all the radii vectores, a line is found whose length is equal to half the major axis and this is called the mean distance. This distance of the center of the earth, from the center of the sun, as ascertained from the velocity of light, is 93 million miles and it is the unit of measurement universally employed in the astronomy of the solar system. It is often called distance unity, and as other distances are expressed in terms of it, they have only to be multiplied by 93 million, to express them in miles also.

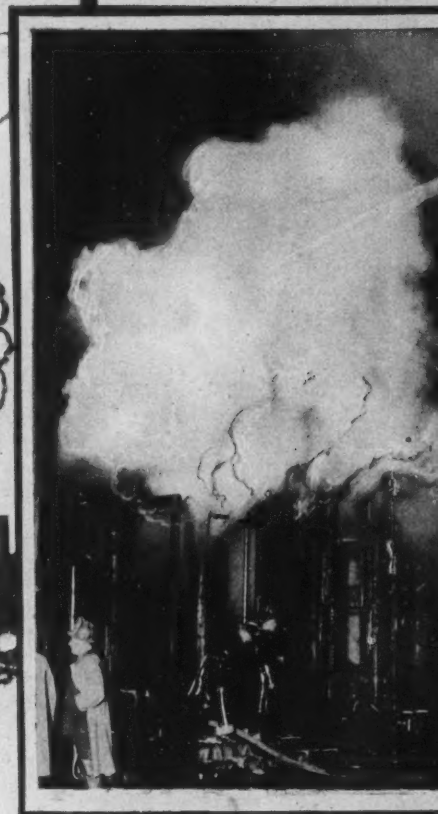
Light travels from one part of the universe to another with inconceivable rapidity, by setting up very rapid vibrations in the particles of the ether, a material substance which fills all space and the interstices of all bodies. Different from the vibrations of the atmospheric particles in a sound wave, light waves travel by vibrations of the ether. The velocity of this wave transmission is called the velocity of light, the speed of which, regardless of color, is 186,300 miles per second of time. Thus it has been found that light requires a definite time to travel, for from several hundred years' observations of the revolution of the moons of the planet Jupiter, the reflected sunlight by which they are observed consumes 998 seconds in traveling across the minor axis or diameter of the earth's orbit. Half this number, or 449 is the constant factor in the equation of light, which multiplied by the velocity of light in miles per second, gives the radius of the earth's orbit, 93 million miles, or the mean distance of the sun.

The earth, at its perihelion, on the 1st of January of each year, is, because of the eccentricity of its orbit, three million miles nearer the sun on that date than six months later on July 1st. Our earth travels on the way round this vast orbit, from perihelion to perihelion, in the course of a calendar year of 364¼ solar days or 366¼ siderial days. The solar day is 24 hours of solar time, while the siderial day, or the real period of the earth's rotation, equals 23 hours, 56 minutes and 4.09 seconds of solar time.

Having thus ascertained the apparent eastward motion of the sun and the length of the calendar year, we should now consider the sun's apparent motion north and south, which when referred to the earth's ecliptic will give the declination north an south, or the winter and summer solstices. As the equator and the ecliptic are both great circles, the sun goes as far north in summer as it travels south in winter. However, it is not the simple nearness or distance of the sun, as we approach or recede in our orbit, that gives rise to our seasons, and their successive and regular changes. As a matter of fact, the earth is three million miles nearer the sun in winter than in summer, but as it revolves about the sun its axis remains always practically parallel to itself, its inclination to the ecliptic being 66½ degrees. Alternately then the poles of the earth are tilted toward and from the sun, the mean obliquity being 23½ degrees. The orbit being nearly a circle the change of seasons does not depend on the varying distance of the earth from the sun, but on the obliquity of the ecliptic. The four seasons come and go in a cycle of an astronomical year and are distinguished by changes in the quantity of heat received from the sun. In summer the altitude of the sun is high and the days are long. In winter the altitude of the sun is not so high and the days are shorter. Herein we have the combined effect of the summer and winter solstices, which when taken in conjunction with the vernal and autumnal equinoxes, give rise to the

(Continued on page 28)





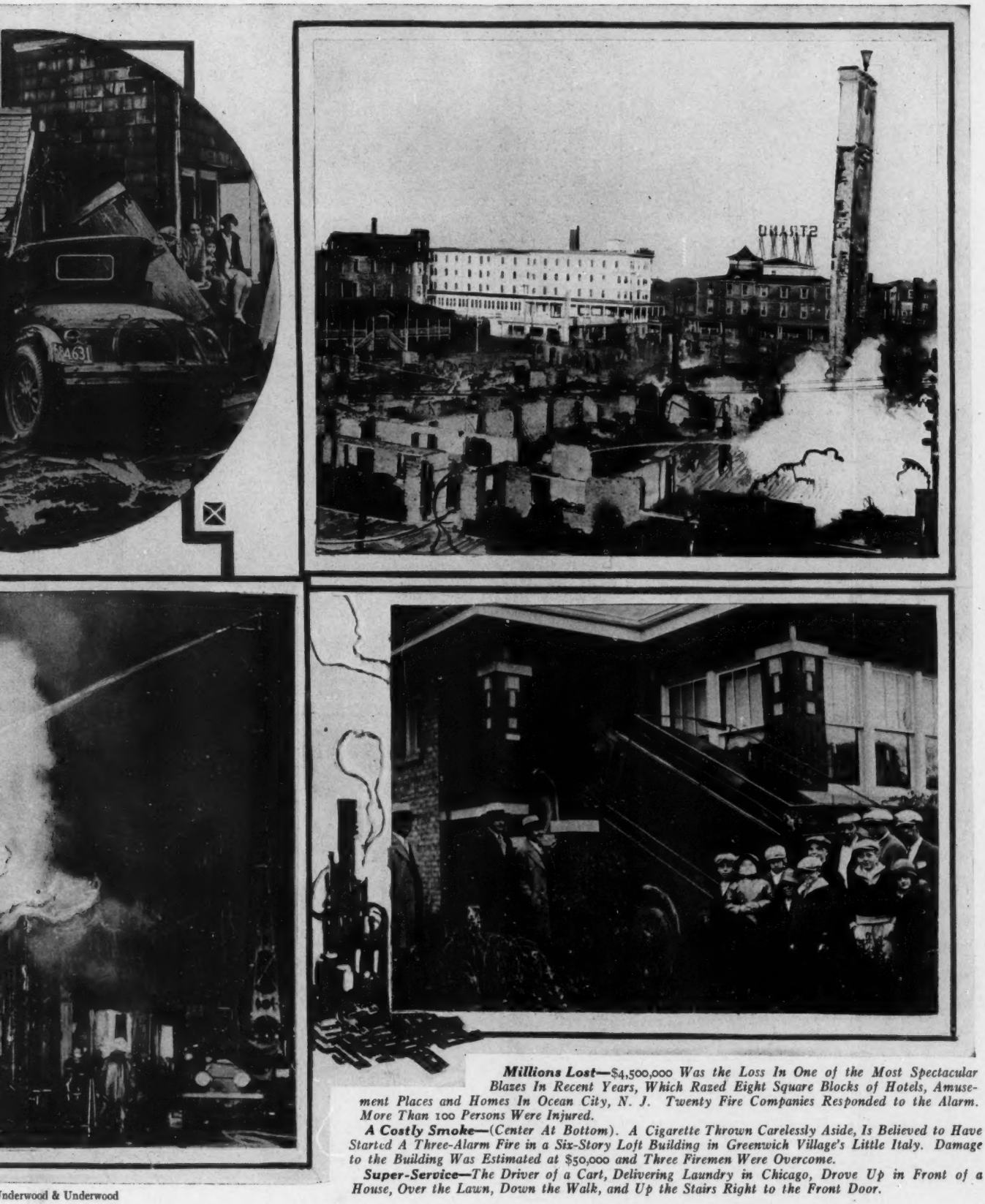
Hospital Fire—*A Fire Started by a Pyromaniac Employed In the Institution As An Orderly, Partially Destroyed One of the Half Dozen Buildings Comprising the Methodist Episcopal Hospital in Brooklyn, N. Y. Dense Smoke Necessitated the Removal of Patients From the Upper Stories To Cots Down Below.*

Wild Auto—*(Center At Top) This Machine Got Out of the Control of Its Driver in Watertown, Mass., Jumped a Sidewalk, Tore Away 50 Feet of Fence, Side-Swiped a House and Then Journeyed Into Another Man's Garage, Completely Demolishing It.*

Four Killed—*The Midnight Express Train Instantly Killed Four Young People at Tilton, New Hampshire. Two Sisters and Two Young Men Were in the Ill-Fated Auto When It Was Hit.*

Photo By Underwood &

EMPHASIZING THE NEED OF VARIOU



Millions Lost—$4,500,000 *Was the Loss In One of the Most Spectacular Blazes In Recent Years, Which Razed Eight Square Blocks of Hotels, Amusement Places and Homes In Ocean City, N. J. Twenty Fire Companies Responded to the Alarm. More Than* 100 *Persons Were Injured.*

A Costly Smoke—*(Center At Bottom). A Cigarette Thrown Carelessly Aside, Is Believed to Have Started A Three-Alarm Fire in a Six-Story Loft Building in Greenwich Village's Little Italy. Damage to the Building Was Estimated at* $50,000 *and Three Firemen Were Overcome.*

Super-Service—*The Driver of a Cart, Delivering Laundry in Chicago, Drove Up in Front of a House, Over the Lawn, Down the Walk, and Up the Stairs Right to the Front Door.*

Underwood & Underwood

IOUS FORMS OF MUTUAL INSURANCE

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Harold P. Janisch, Editor and Business Mgr.

Are You a Discriminating Buyer?

PERHAPS it is the Christmas season which has launched our thoughts on this particular current of reflection. Everybody at this time of year is in a buying humor, and never are the coaxing appeals for everybody's dollar more persuasive than now. Salesmanship puts on its most attractive smile, polishes up its vocabulary of invitation and argument, displays its strongest lure and twines a holly wreath around the dotted line.

Human nature is a quaintly interesting thing, and the psychology of approach to its favorable consideration has been made a science which takes into reckoning all its foibles and fancies, its vanities and weaknesses. The publisher knows the selling value of the intriguing jacket on the book which he hopes may lead the lists of popular pabulum for jaded minds; the merchant knows the pocket-pull that lies in colorful presentation of his wares, in unique arrangement and in cheerfully gay wrappings. The customer must be on his guard lest these things are designed to over-balance other factors more important to the profitable investment of his earnings. The discriminating buyer insists on looking beneath the label. There may be instances in which he is willing to take a gambler's chance, counting the thrill of the gamble as part of that for which he pays the price; but in such cases discrimination is surrendered to emotion, and if emotion is the only worth while result he has no reason to complain.

WHEN the buyer is not playing with his money he needs to bear in mind that a dollar is a dollar; and, if he be like the majority of us, every dollar he has in his pocket has cost him personal effort in mind or muscle. It represents an outflow of energy which has been converted into this silver or paper symbol. He is not spending some abstract, mysterious thing called money; he is spending a part of himself. He is exchanging part of himself for what ought to be at least equivalent value. That is an exchange which should be made only with sufficient knowledge and judgment to insure the adequate return.

One of the peculiar facts which we have encountered in our coming and going among our fellow men is that not a few who are shrewd and thoughtful buyers when in the market for obviously material commodities—such as a house and its furnishings, an automobile, a set of golf clubs, a radio outfit, wearing apparel or any number of things of like nature—appear to be devoid of caution and discrimination when it comes to buying a seemingly less material commodity such as insurance.

It is a strange aberration of judgment which leads to this sort of indifferent purchasing. The original investment in the home and its equipment, or in the car, or other property, real or personal, may be lost utterly thru failure to give at least as much intelligent attention to the matter of securing their value against the contingencies of fire and accident.

There are many methods of insurance salesmanship —some to be commended, others less commendable; but there are only two methods of buying. One of these, and, unfortunately the most common, is the non-inquiring and non-comparative; the passive kind of buying which is induced by the chance contiguity of a persuasive agent, the genial impulse to do business with a neighbor or acquaintance, the less genial impulse to get rid of a persistent visitor who declines to be discouraged, and is strangely oblivious to the meaning of a negative answer. From such buying you get something and you pay something for it; but you do not know what you are getting nor whether it is really worth what you paid.

THE other method is that of intelligent investigation—the same sort of buying that you do when you buy an oil heater or an office safe. You compare values and prices; you consult persons who know; you pay your money only when you have satisfied yourself that what you are getting is the best and the most which can be had for the price you can afford.

Insurance is too important an item in the essentials of a well-provided life to be disposed of on the say-so of anybody who happens to approach you with an application in one hand and a fountain pen in the other. It may take a little effort to understand the differences in various types of insurance, but no more effort than it requires to understand a hundred other things which you have given your serious thought.

Any man can understand easily the difference between certain other types of insurance and Mutual Insurance. At once it becomes clear that in Mutual Insurance one pays a premium which is to cover only administration expense, and security, without any of the needless and wasteful overhead which makes other types of protection so costly. Since Mutual Insurance saves this extra expense and returns it to the policyholder at the end of the policy period, it is obviously to the interest of the buyer to inquire whether competing forms of insurance at a higher cost have any compensating advantage which cannot be obtained by the Mutual method.

HE may search a long time for that advantage, but he will not find it. Let him put to the test the value of the security obtained by one method and by the other—he owes it to himself to do that. Let him test the reliability of one method as compared with the other—that too he owes to himself. Our conviction is that the more of his intelligent consideration he gives to this vital question, the further he presses his inquiry into it, the wider the field of facts in which he pursues it, the more settled will be his conviction that Mutual Insurance offers a greater measure of security at less cost than any other kind.

The Journal of American Insurance expresses the seasonable hope that your Christmas joy and your outlook for a tranquilly prosperous New Year will be sustained by the knowledge that in the matter of safeguarding the things you possess you have used the good sense of a discriminating buyer.

Life Lights Against a Business Background

I Surprise a Secret

By S. J. DUNCAN-CLARK

I SURPRISED a secret the other day. That is to say I came upon it suddenly while it was warming the heart of a man who is known to mere business acquaintances as a cold and calculating master of dollars.

Master of dollars he is. He makes them work for him. They stand up and salute whenever he enters a bank. They do his bidding. He has taught them to add and multiply. Few people know that he has also taught them to divide. I had suspected the fact. I have been more than a mere business acquaintance for many years. Long ago we were at college together. Something happens then which made a certain tie between us—never acknowledged in any definite words, but none the less strong. At the time he merely grasped my hand and looked me in the eyes. He did not speak, but in his glance then, and in things that have since happened, he has let me understand that he feels indebted to me. But that is another story and has nothing to do with what I am about to tell, except as background and explanation of how I came to surprise the secret.

EVERY now and then I drop in to cousult him upon some matter in which I know his advice will be of greatest value. That is a privilege—a peculiar privilege—I enjoy. His door is always open to me. To others, except his closest business associates, his door is closed, or, at least, so guarded by intercepting subordinates that access is to be had only after seaching inquiry and long delay.

But these outposts have been instructed, apparently, to facilitate my entrance. They let me pass as they do his partner, with a mere glance to be sure it is I. His secretary, who is immediately outside the door of his private office, announces me without question.

The other day his secretary was not at her desk when I reached the door. I hesitated a moment. The door was not tightly shut, and I heard a movement within. Then I entered—unannounced. I ought not to have presumed so far. Had I suspected what was happening I would have quietly withdrawn. And yet, in spite of the embarrassed and apologetic feeling which still persists, I am glad I was so brash.

Perhaps I ought not now to be telling what I saw. I am afraid if his eyes should fall upon this story he will not like it. But none of my readers will ever guess his identity—not even his own partner suspects the truth.

IT was a strange sight that met my eyes as I stood looking at his big, flat-topped, mahogany desk. He stood behind it, bending over it. His fingers were busy with tinselled twine. My glance took in an extraordinary assortment of articles on the desk. I had never seen it so disorderly. As a rule it presented a surface of extreme neatness—letters and documents piled carefully with evened edges. But now there lay upon it what seemed to be the disarranged contents of a shop-window; of the window of a shop devoted to the sale of what children need and like—small garments and adornments, toys, gayly covered books, a pile of tissue paper, another of stouter paper with holly-leaf design, and somewhere in the middle of it all an effigy of the children's Saint, variously known as Nicholas or Claus.

I think he felt rather than heard me. He looked up suddenly and frowned. A shadow of vexation crossed his face. I stepped back, stammering an apology.

"No," he said sharply, "come in."

Flushing uncomfortably I obeyed.

"Close the door—tight," he ordered. "Since you have surprised my secret you must share it. That is the only safety. I can trust you, thank heaven."

With the last words the irritation had passed from his voice, and the expression had come into his eyes which I had first seen there on the occasion when our strange friendship began.

"COME here and look at this," he invited. I crossed the room and stood beside him. Immediately beneath his eyes was a big photograph; a group of children running the gamut of the years in childhood's first decade, boys and girls. Each child in the picture had a small number adjacent to it, and on the margin the numbers were tabled with a name opposite each—Edward, Marjory, Frank, Peter, Laura and so on.

"My children," he said, smiling as I am sure none of his business associates had ever seen him smile.

"Your children," I stammered. "I—I—don't undertsand".

"Sit down," he said, with a little of his customary imperious manner. "Nobody knows about this but you and me. My partner is out of town. I sent my secretary on an errand which will take her all afternoon to perform. I left orders I was not to be disturbed. I ought specifically to have included you in those orders. But here you are, and now I must bind you to secrecy by giving you all my confidence."

THEN followed a story too long to relate as he told it. I can only summarize. He had begun life as a waif. Discovered by the police, a wailing infant in an alley, he had been put in an institution, where he suffered many things. Later he was apprenticed to a farmer, where his hardships were unendurable. He ran away, and battled thru many vicissitudes to success. He had become encased in a protective shell of gruff reticence; but beneath the hard exterior there had remained a glowing warmth for luckless childhood. When the dollars learned to obey him he had marshalled an army of them and built a model home for the waif; built it in a quiet little country town. He searched for the wisest, kindliest mothering woman he could find and put her at the head of it. He provided the most competent help that his obedient dollars could command.

"For seven years now I have been doing this whenever December ar-

(*Continued on page 29*)

Insurable Interests Of Bailees

Continuing An Explanation of A Phase of Insurance Which Is Somewhat off The Beaten Track

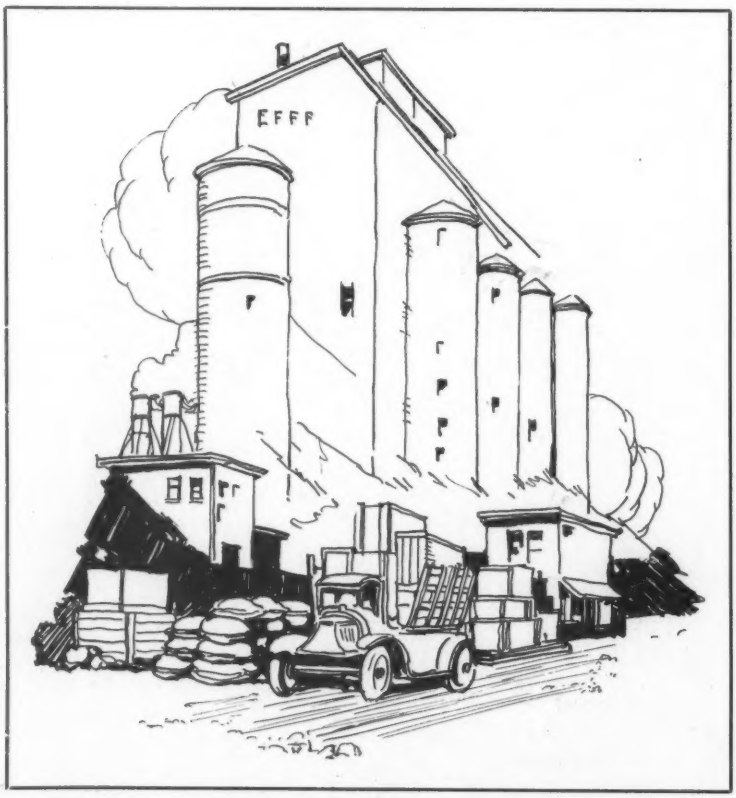
By EDWIN W. PATTERSON
Professor of Law in Columbia University
Author of "THE INSURANCE COMMISSIONER IN THE UNITED STATES"

ARTICLE II

THE subject of these articles is the law governing insurance procured by warehousemen, grain elevators, railroads, and other bailees, covering the articles or commodities which they hold for the owners (bailors). Insurance by bailees on property which they do not own has long been a common practice. Yet how can it be reconciled with the principles of law that only the preson who will be damaged by the destruction of property, will be allowed to insure it; or with the rule that gambling and incendiarism must not be tolerated? The legal requirements of "insurable interest" are so formulated as to obviate these dangers. Three types of insurable interest are found. I. The bailee's proprietary interest (e. g. his lien for compensation) has already been discussed. II. The bailee's contingent liability interest (a) as imposed by law apart from an express contract, was partly covered in the previous installment. The present installment concludes this point, then discusses (b) the bailee's interest arising out of an express contract to insure in the bailor's name; and finally, III, the bailee's "interest" to insure for the bailor's benefit.

SUPPOSE the bailee procures a policy upon only his interest as bailee in the goods, and the goods are destroyed due to an event (e. g., a non-negligent fire) which is within the risk insured against, but for which the bailee is not liable to the bailor; may the bailee recover upon the policy? Under the strict indemnity principle, no. The bailee has sustained no loss or damage (assuming he had no proprietary interest in the goods), and without proof of loss or damage to the insured, he cannot recover. Thus, in the New York case already cited, ([18]) a company making up clothing from the cloth of another was held not entitled to recover the full value of the cloth insured by a policy of "strike" insurance covering its "interest in, or legal liability for" the cloth, without proving that it was legally liable to the bailor (owner of the cloth) for the loss which occured.

However, some courts have not adhered strictly to this principle.



A Single Policy of Insurance Can Be Arranged To Protect All the Owners of the Grain In A Large Elevator

Thus, a Kentucky postmaster who procured burglary insurance on United States government funds and postage stamps "held by him in trust," was allowed to get a judgment for the value of stamps and money order funds taken by a burglar, without any definite proof that he was liable to reimburse the Federal government (his bailor) for such a loss.[19] The court made simply a general statement that "the postmaster was charged with these stamps and funds of the government and is held accountable therefore." "Accountability" is not the same as "legal liability," since one who is merely "accountable" may excuse himself by showing a loss due to events for which he is not legally liable. The case may be supported on the ground that the policy really covered the bailor (United States), for whose benefit the bailee was suing.

A SIMILAR view was adopted by the United States Circuit Court of Appeals for the Ninth Circuit.[20] There the marine carrier insured a cargo, partly his own and partly belonging to others, by a valued policy, "against general average and salvage only," on a voyage from Seattle to Nome. The vessel became stranded and part of the cargo (lumber) had to be thrown overboard to save the ship, thereby making the owners of the ship and remaining cargo liable, under the law of "general average," to contribute to make up this loss. In an action on the policy,it was held that the insured could recover not only for his own contribution (as shipowner and cargo-owner), but also for the contributions due from his bailors, without showing that he was legally liable to his bailors to reimburse them for their contributions. The court urged that it was good policy to allow the bailee to insure for the full value of the goods, because he *might* be liable for their loss, and would

18. Brooklyn Clothing Corp. v. Fidelity-Phenix Ins. Co., 205 App. Div. (N. Y.) 743, 747, 200 N. Y. Supp. 208 (1923), *supra*, note 3.

19. General Accident Fire and Life Ins. Corp. v. Stratton, 165 Ky. 754, 758, 178 S. W. 1060 (1915).

not want to inquire into the question of his liability to the bailor:

"It had the right to insure against its own negligence as well as against the necessity of being required to enter into the inquiry whether its own negligence caused or contributed to the stranding of the vessel. . ." "After a careful investigation of the English and American decisions, we think the true doctrine is that a carrier has an insurable interest in goods in his possession as such, to the full extent of their value, against a loss for which it is possible that he may become responsible, and that the question whether he has the right to recover under the policy is not to be determined after the loss by inquiring in fact whether he is then liable to the owners of the property for the value thereof or the damage thereto."[21]

IT is submitted that the ordinary marine policy is not broad enough to cover the risk of having to investigate doubtful losses, though it might be made broad enough. The court stressed the fact that the evidence did not show the carrier was not liable, hence, if the loss were one for which the carrier clearly was not liable, the rule of the case would not apply. Perhaps this case, too, can be explained on the theory that the bailee was insuring for the benefit of the bailors as well as for itself. A New Jersey case construed a policy covering goods for which the carriers "are liable" in this way.[22] This topic falls under subdivision III of this article.

(b) The bailee may by express contract assume an "insurer's liability," making him liable for the loss of the bailed goods due to any cause. In this event his insurable interest is for the full value of the goods, under the principles just discussed. A different type of contract is presented where the bailee contracts with the bailor to insure the goods for the benefit of the bailor. If the bailee neglects to take out any insurance, he is liable to the bailor for the full value of the goods destroyed by a peril against which the bailee had contracted to insure,[23] but no question of insurance law is presented. If the bailee insures in his own name and the language of the policy is broad enough to cover the bailor's interest as well, the bailee has performed his contract.[24]

Where, however, the bailee procures insurance solely in his own name without covering the bailor's interest, he has not, it is generally held, performed his contract to insure for the bailor, and he is therefore liable to the bailor for the full value of the goods under the rule above stated. May he, then, recover on his insurance policy on the theory that he has (in case of loss due to an event insured against) a contingent liability interest to the full value of the goods? It has been held that he may.[25] The bailee's legal liability to the bailor (which in this case is absolute) constitutes "loss or damage" within the principle of indemnity. The courts do not require proof that the bailor is actually suing to collect, or that he actually has collected, from the bailee; the courts apparently trust that the bailor will look out for himself. Moreover, since the bailee can recover no more than the amount of his "damage," the policy is not a "wager," and the insured has no temptation to destroy the insured property.

As to the language which must be inserted in the policy to cover the bailee's contingent liability interest, the same principles apply as set forth above. In marine insurance, the interest need not be disclosed, apart from fraud.[26] In fire insurance, the bailee's contingent liability surely does not make him "sole and unconditional owner" of the bailed property, and some qualifying words must be added to qualify this warranty of the standard fire policy. Any language which notifies the owner that a limited interest is being insured, is sufficient.[27]

III. *The Bailee's Representative or Trustee "Interest."*

THUS far we have been discussing "interests" of the bailee in the bailed articles of such a kind that the destruction of the goods will cause the bailee himself direct personal loss. In accordance with the principle of indemnity, these are the

(*Continued on page 26*)

20. Munich Assurance Co., Ltd. v. Dodwell & Co., Ltd., 128 Fed. 410 (1904).
21. *Ibid.* p. 412.
22. Roger Williams & Co. v. Auto Express Co., 78 N. J. Eq. 165, 78 Atl. 670 (1910).
23. See the note, Warehouseman's Duty to Procure Insurance Under Contract with Bailor to do so Makes Warehouseman Liable for Value of Goods in Case of Destruction By Fire," 16 American Law Reports 293-295. See also 26 *Ibid.* 1208.
24. Johnson v. Campbell, 120 Mass. 449 (1876).

The Warehouseman Can Insure Under A Floating Policy All Goods Which Come Into His Possession, And the Insurance Attaches Automatically As Soon As He Gets the Goods

Farm Property and Lightning

(*Continued from page 6*)

ning rod when properly installed does give protection is abundantly proven by experience. Unfortunately, statistics in the past have not been collected in such form as to demonstrate the effectiveness of lightning rods in the most satisfactory manner. We do not at the present time know what proportion of buildings are equipped with lightning rods, but we do know that the greatest losses occur to buildings which are not so protected. Statistics collected in Iowa, where the State Fire Marshal estimated that about one half of the farm buildings were equipped with lightning rods, showed that only about $4500 in losses were incurred in rodded buildings in a year, whereas the losses from lightning in buildings not so protected amounted to more than a third of a million dollars. More recent and complete reports from the State Fire Marshal of the same state showed about 8% of the annual losses to occur in rodded buildings while the great bulk of the losses occurred in unrodded buildings. In Wisconsin, where it is estimated that a still larger proportion of buildings were provided with rods, the percentage was only 4.5. A number of other states from which statistics are available show even smaller percentages, as would of course be expected where rodding is not so genrally done. In Illinois, for example, the percentage was less than 0.5.

In statistical reports, buildings are usually classed as rodded regardless of the character of the installation of lightning rods which has been provided. There was a time in the history of the lightning rod business when the lightning-rod salesman took as much of the farmer's money as he could get and in return put as little equipment on the building as would "pass muster." The installations thus provided were not always effective. To-day this business is undoubtedly in a better condition and the more reputable dealers in lightning-rod equipment can be depended upon to provide an installation which is proper for the purpose. Nevertheless, the safest method in ordering an installation of lightning rods is to require compliance with a standard specification covering the subject. Such specifications are now available.

The essential elements in a suitable lightning-rod installation are as follows: Points or air terminals should be placed at or adjacent to the highest parts of buildings and along the ridges of roofs, etc. Such air terminals should be connected together by conductors and also should be connected to earth by down-conductors. The number of down-conductors will be determined by the size and shape of the building, but they should never be less than two in number, and should be very effectively grounded. The proper connection to the ground is one of the essentials in a protective system and such a connection must be maintained throughout the life of the building. This involves occasional inspection and if necessary, maintenance work, since rods will sometimes be broken off or corroded where they enter the ground. If this connection is lost the value of the lightning rod installation is very greatly reduced.

Protection of Live Stock

THE loss of live stock by lightning is caused in a large measure by herds drifting against ungrounded wire fences during thunder storms and receiving a sufficient discharge to kill them, either from static electricity accumulated on the fence or from a stroke on the fence itself. The fences that give rise to the most trouble of this kind are those constructed with posts of poorly conducting material, such as wood or concrete. Fences built with metal posts set in earth are as safe from lightning as it is possible to make them, especially if the electrical continuity is broken. This can be done by inserting insulating material at joints in the wires at intervals of about 1000 feet. These insertions may be in the form of fence panels of wood or lengths of insulating material to the ends of which the wires are attached.

Breaking the electrical continuity is very desirable in that it prevents a lightning stroke from affecting the entire length of a fence, as it may if a stroke is direct and the fence continuous even though grounded.

Isolated trees in pastures where stock congregate seeking shade are also a source of loss. Where shade is available from wooded areas of considerable size, isolated trees should be removed.

Where wire fences have posts of nonconducting material such as wood, it is well to insert at intervals a galvanized-iron post. In lieu of this, a length of one half or three-fourths-inch galvanized-iron pipe may be driven into the ground beside the fence and the wires electrically connected to it. The pipe or post should extend at least 3 feet into the ground and preferably more.

Is Protection Worth While

EXPERIENCE demonstrates that a properly installed lightning rod system gives a large measure of protection both against fire and against the likelihood of shock to the inmates of a building. Even without such protection the percentage of buildings which are struck even in rural localities is small and the question arises whether in considering the likelihood of a particular building being struck the investment in lightning rods is worth the amount of protection secured. Computations show that to equip all the buildings in the country with lightning rods would involve a cost such that the interest on the investment would be greater than the present amount of our annual losses from this cause. It consequently does not appear economic to provide all buildings with protection indiscriminately. It has already been noted, however, that rural buildings are more likely to be struck than those in urban communities and particular attention should be given to the exposure of any particular barn or dwelling house. Consideration should be given also to the frequency and severity of lightning in the particular locality concerned and to the value and nature of the building and its contents.

There are also to be considered the less tangible costs which sometimes accompany the destruction of buildings and their contents which are not usually covered by insurance. An interruption to farming operations especially at certain season of the year may involve losses quite distinct from and in addition to the losses arising from the direct destruction of material property. It is consequently not easy to state in general terms when the installation of lightning protection should be undertaken. Each case must be considered on its own merits. To quote a committee of the National Fire Protection Association "The cost of lightning protection is more than justified when the added personal safety and avoidance of temporary deprivations, as well as the saving of property, are considered."

LIGHTNING rods would undoubtedly be more frequently installed if the proper recognition of the protection rendered were given by the in-

(*Continued on page 25*)

This Agreement, Made by and between the
of Minneapolis, Minnesota, and Peter Ferguson
of Bordulac P. O., County of Foster
and State of N. D., , party of the second part,

Witnesseth, That in consideration of an application for this contract, which is hereby referred to and made a part hereof and the payment of the sum of $55.00 according to the conditions of a certain promissory note for said amount, by said party of the second part, the above named agrees to purchase the entire crop of small grain, consisting of wheat, oats, flax, barley, corn or rye, from said party of the second part at the rate of $5.00 per acre, grown during the season of 1899; all of said crops being on the following described lands, to-wit:

60	acres N.W.¼ (West side)	Sec. 26	T. 146	R. 65	$ 300.00
160	acres S.E.¼	Sec. 20	T. 4	R. 4	$ 800.00
	acres	Sec.	T.	R.	$
	acres	Sec.	T.	R.	$
	acres	Sec.	T.	R.	$
	acres	Sec.	T.	R.	$
	acres	Sec.	T.	R.	$
220	TOTAL.				$ 1100.00

Portion of a Crop Insurance Policy Issued in the Year 1899

Crop Hazards and Their Insurance

Need of More Comprehensive Study of This Problem and a Bit of History of Early Experiments in This Field

BY G. WRIGHT HOFFMAN

Assistant Professor of Insurance, Wharton School of Finance and Commerce, University of Pennsylvania.

ARTICLE I

IN every line of business endeavor, the element of risk plays an important role. Uncertainty regarding the prices of materials and labor, of the market price of the product when finished, natural hazards of fire and storm —all are factors of first importance. It is the particular function of insurance to eliminate these risks as far as possible and where this is not possible, to so distribute them that their effect upon individual business units is reduced to a minimum.

In a few fields, such as life, fire and marine, unusual success has already been attained. But when one reviews the numerous kinds of uncertainty present in varying degrees in every type of enterprise, it is clear that only a beginning has been made.

This is particularly true when applied to the business of farming. The farmer can insure his life; he can insure his property against fire or flood or windstorm. He can insure his crops against hail, and in some instances, against frost or freeze. But the major risks of farming he cannot as yet insure. And until these risks have been met in some measure, farming will continue to be a hazardous enterprise with its most essential insurance needs still to be provided.

The Major Risks of Farming.

WHAT are here referred to as the major risks of farming fall under three general headings: risks of weather, risks of plant and animal disease, and the risk of price variations. These various elements of uncertainty determine for the farmer, in no small measure, his profit or loss from year to year. Under the heading of weather, he is subject to drought which is probably the most important single source of loss. But in addition storms, floods, freezing, hail, frost, excessive moisture are in turn from year to year of primary importance. Under plant and animal disease each decade has its own particular pests. Just now the corn borer, the boll weevil, the Japanese beetle and black rust are in the van; in another decade a new assortment will be on hand.

Table 1. Estimated percentage of reduction from full crop yield, from stated causes, average 1915-1924 inclusive. (1)

Cause of crop damage.	Wheat (% loss)	Corn (% loss)	Cotton (% loss)
Deficient moisture ..	10.7	11.8	10.0
Excessive moisture ..	3.1	5.0	6.4
Floods	.4	1.0	1.1
Frost or freeze.....	4.	3.8	1.0
Hail	1.3	6.	.4
Hot winds	1.7	1.4	.9
Storms	.3	.6	.7
Other climatic	.2	.2	.2
Plant diseases	5.1	.4	1.2
Insect pests	3.	2.6	19.2
Animal pests	.1	.1	(2)
Defective seed	.1	.4	.1
Other and unknown..	.4	.3	.7
Total	30.4	28.2	41.9

(1) Compiled from statistics given in *Agriculture Yearbook*, U. S. Department of Agriculture, 1925.

(2) Less than 0.05 per cent.

The accompanying table shows in a quantitative way, the importance of these various elements to the farmer. These figures are compiled annually by the U. S. Department of Agriculture from data supplied by their hundreds of farmer crop correspondents. They are of course only estimates, but indicate in a general way the relative importance of the various weather and plant and animal disease factors. Being an average for a ten year period, the figures in the table do not show the degree of variation of each of these factors from year to year. The variations are large and for that reason constitute serious elements of uncertainty to the farmer. Thus, for wheat, for the single factor of deficient moisture, the percentage of crop damage yearly from 1915 to 1924 was as follows: 1915—3%, 1916—18.5%, 1917—12.1%, 1918—22.1%, 1919—10.8%, 1920—5.4%, 1921—10.6%, 1922—14.2%, 1923—9.9%, 1924—11.2%.

Of much greater importance than the vagaries of weather and plant disease is the uncertain course of prices. It is inherent in farming that crops must be planned and planted from 6 to 18 months before they are sold. They may therefore be planted at a time and under price conditions which look favorable, but may be harvested at a time of very unfavorable prices. It is a fact of common knowledge that regarding the sale price of his product the farmer of necessity carries on a continual game of guessing. The unfortunate part about the game is that from season to season it is continually creating alternate surges of optimistic speculation and severe depression between individuals and sections of farming to the very serious detriment of the industry as a whole.

An Insurance Need.

WHAT the farmer needs is stability of income. Six successive years with an income each year of $2,000 is far more satisfactory from an individual as well as a social point of view than three years with an income of $5,000 followed by three years of successive losses of $1,000. One means assurance and constructive planning; the other, stimulated business activity, speculation, a shifting of land values and land ownership followed by depression and general unrest.

Instability of farm income is the direct result of the uncertainties of weather, plant and animal disease and price. The solution to the farmers' need, therefore, is some device which will minimize the effect of these hazards upon his income from year to year. The writer believes that the solution to this problem lies in the field of insurance. The science of meteorology has not advanced far enough to predict variations in weather with even a fair degree of accuracy from one season to another. Our knowledge of price forecasting is also decidedly inadequate. Nor is there reason to believe that successful prediction of these uncertain elements is at hand. The next best solution is to insure against these hazards and in so doing to so distribute their effect that a fairly stable farm income will result.

Insurance of Growing Crops.

SEVERAL attempts have been made to supply farmers with a broad crop insurance policy. On the whole these attempts have not been successful. They are instructive, however, and indicate fairly definitely what should and what should not be included in a blanket crop policy. The earliest attempt of this kind which the writer has found was one written by a Minneapolis company in 1899. A facsimile of one of the policies issued by this company is here reproduced.

The insurer in this early experiment guaranteed that the farmer's crop of small grain would be worth at least $5 per acre at the time of harvest. A premium of 5% was charged. Any damage by weather, by plant diseases, by insect pests, or by any other unforseen force was covered. In addition, the very important hazard of price decline was included. A good crop might be grown, but if the price were low, the value per acre might be less than $5.

No policy has ever been written quite so simple and free from restrictions as this first experiment. Perhaps this was due to the fact that no precedents were to be had to determine its terms. In any event the venture turned out to be a dismal failure. The management of the company was apparently not of the highest quality. Premium notes were given to be paid upon the harvest of the crop. These were discounted by the company and before the summer was over the company failed, leaving the notes which were in the hands of third parties to be paid by the farmers.

Coupled with what appears to have been an unreliable concern is the fact that the rate charged may have been too low for the insurance limit. The following table has been drawn up from U. S. Department of Agriculture data for the purpose of throwing some light upon this point.

Table 2.—The price, yield and value per acre of the wheat crop, for two states, for specified years.

State and year.	Av. farm price per A. Dec. 1 (cents)	Av. farm yield per A. Dec. 1 (bu.)	Av. farm value per A. Dec. 1
N. Dak.:			
1886-95	49	14.5	$7.10
1896	64	11.8	7.55
1897	74	10.3	7.62
1898	51	14.4	7.34
1899	51	12.8	6.53
Minn.:			
1886-95	64	13.7	8.77
1896	68	14.2	9.66
1897	77	13.0	10.01
1898	54	15.8	8.53
1899	55	13.4	7.37

Table 2 shows for two states the price, the yield and the value per acre of the wheat crop for the year 1899 and for the years immediately preceding it. It would appear from these figures that the $5 limit in this early crop insurance venture was fairly conservative. For North Dakota the farm price of wheat averaged 51c per bushel in 1899. This would mean that the insured crop of wheat would have had to average less than 10 bushels to the acre before the company would have had to pay for a loss. For the state as a whole, the average yield that year was 12.8 bushels per acre. For Minnesota the yield would have had to be 9 bushels or less and for the state as a whole it actually averaged 13.4 bushels.

These figures, however, are not conclusive evidence that the $5

(Continued on page 31)

Aviation

(*Continued from page 9*)

of war planes and the flotation of numerous air transportation enterprises. With the general curtailment of business operations following the marked depression of 1920 there were few new aircraft built. This left only the old machines which became poorer risks for the underwriters with each passing year. Only the most venturesome launched new enterprises and these were certainly poor risks from the standpoint of moral hazard, if from no other. The Association was born into adverse conditions.

The Activities of Underwriters Outside of the National Aircraft Underwriters' Association

THE Hartford Insurance Companies continued to write aviation insurance after leaving the Association in July, 1922. Their writings gradually dwindled, however, until in 1926 no coverages were written.

Although representatives of The Travelers Insurance Companies participated in some of the formation meetings of the Association, they never became members. Of all the aviation insurance underwriters these companies deserve the distinction of being *the* pioneers.

Actuaries of The Travelers were the ones who went to Washington and made the initial analysis of the records turned in by the various flying fields at which our war pilots had been trained. From this analysis the workmen's compensation rates were developed.

These companies are the only ones that have maintained active underwriting in the field of aviation insurance since its inception. They have occasionally limited the coverages they were willing to issue. "Crash insurance is the one we do not write at all. Passenger hazard is the one that we write, if at all very reluctantly," stated Mr. C. M. Gallup, their aircraft underwriter, a short time ago. Public Liability, Property Damage and Workmen's Compensation insurances have been written each year down to the present. The same individual has been in charge of the aviation underwriting throughout the entire period and this will undoubtedly be a valuable asset for the period of revival that has already started.

Two other companies, The Indemnity Company of America (of St. Louis) and The Independence Companies (of Philadelphia) who were never members of the Association, have entered the field during the last two years. The former began underwriting property and liability risks in 1925 and The Independence Companies issued their first policies in the Autumn of 1926.

The Independence Companies have as "aviation underwriting agent" a former English war pilot who was an active figure in English aviation insurance from its beginning until he came to this country after the World War. His first connection in this country was with one of the former members of the Association. The various forms used by his two connections are very similar and it is generally felt that this individual has an unusual degree of control over the policies and practices of the companies with which he is connected. This is probably because of the importance of the "personal equation" which is always so vital in any branch of insurance where purely judgment rating prevails. A later article dealing with rates and rate making will clarify this point.

VARIOUS members of the National Bureau of Casualty and Surety Underwriters have felt that the Bureau should gather statistics and compute rates for the aviation hazards in which member companies might be occasionally interested. It was proposed that these rates be listed in the regular liability and collision manuals. The membership was canvassed in 1926 regarding this matter, but not enough interest was evidenced to warrant the attempt. It was felt that the individual companies should make their own rates from experience they might have built up. This seems to be indicative of the insurance attitude toward aviation in the United States at the close of 1926.

The year 1927 has brought with it great development in sound commercial enterprises. The Air Commerce Act and the Air Mail Contract Act of 1926 have created conditions which seem to be conducive to sound insurance. The work of pilot classification and of plane registration and certification, formerly carried on by the Underwriters' Laboratories, is now being done even more extensively and thoroughly by the Aeronautics Branch of the Department of Commerce. It is felt that this is bound to lead to a renewed and a more vigorous interest on the part of underwriters.

Lightning

(*Continued from page 22*)

surance companies in the form of premium differentials. Such a differential is granted, I believe, by a number of the mutual insurance companies and I am told that others restrict their business to insuring only those buildings which are equipped with lightning rods.

To avoid abuse of this recognition of the virtue of lightning rods it is perhaps necessary to have inspection of a lightning rod installation and to require that the installation comply with a certain minimum standard of excellence if indeed it be not required to meet a definite and detailed general specification. At any rate, it would seem wise to give some sort of recognition to this form of protection and thus encourage installation of rods, since they will certainly reduce the amount of loss incurred from this source. Insurance companies which charge the same premium for a rodded as for an unrodded building encourage the farmer to omit an element of protection which in many localities is urgently needed and are saying in substance "Do not install lightning rods because they do not reduce the amount of losses which we would otherwise be required to pay." Such a statement would not be in accordance with the known facts and consequently it does not seem right that it should be indicated by a premium rate any more than it would be uttered as a definite statement.

Conclusions

LIGHTNING is the cause of enormous losses by fire every year and a large portion of these losses occur on farm property.

If properly designed and constructed, the installation of lightning rods will reduce the hazard of such losses to farm buildings to a negligible quantity. Encouragement should be given to the installation of lightning rods on farms by recognition of their value in the fire-insurance rates.

It is important that the grounding connection of a lightning rod be effectively maintained and to this end periodic inspections should be made.

Reduction in the losses of live stock in open fields may be made by the proper grounding and breaking continuity of wire fences.

Almost

"Say, that fellow over there looks just like your brother."

"Sure, he is my sister."—*Northwestern Purple Parrot.*

Bailees

(*Continued from page 21*)

only interests which can strictly be called "bailee's interests." However, if the term "bailee's interest" be taken in a broader sense to include any legal relation of the insured to the property which makes it legally permissible for him to insure in his own name and collect the insurance money from the insurer, then the bailee has an "insurable interest" to the full value of the goods even where he procures the insurance for the protection of the bailor's interest. "Insurable interest" here means a right which the bailee has in contrast with Tom, Dick or Harry who might take out insurance on the bailor's goods.

At all events, the courts have repeatedly held that the bailee may insure the goods in his own name, for the benefit of the bailor, and recover from the insurer the full amount of the damage to the goods,[28] even though the bailee has no lien or other proprietary interest,[29] and even though the loss is caused by an event (e. g., a non-negligent fire) for which the bailee is not liable to the bailor.[30] These cases rest upon the analogy to the principle that an agent may contract in his own name for the benefit of his principal and may recover on the contract so made.[31]

How are these decisions to be squared with the principle that property insurance is an indemnity contract, that wagering contracts are illegal, and that contracts which tend to encourage destruction of the insured property are against public policy? To meet these objections, the courts have thrown several safeguards around the rule. The chief one is the corollary rule that the bailee, collecting the insurance money from the insurer, holds the residue (after satisfying his own proprietary interest) "in trust" for the bailor. This corollary is enunciated by all of the cases just cited. For instance, the Massachusetts Supreme Court said: "Whatever the consignees [bailees] might recover on such policies in excess of their own claims they would hold in trust for the consignor."[32]

Moreover, the bailor has in several cases successfully maintained a suit (bill in equity) to recover this residue from the bailee who has collected the insurance money, and this without regard to the bailee's liability to the bailor for the loss which actually occurred.[33] The courts apparently assume that the bailor will look out for himself and will prevent the bailee from acquiring an illegal gain by keeping the entire proceeds of the policy.

In some jurisdictions, at least, the bailor need not wait until the bailee has collected the insurance money; he may sue the insurance company directly on the policy, on the theory that as beneficiary of the contract he has a direct legal claim against the insurer.[34] These cases show that it is really the bailor's interest which is insured and that to speak of the "bailee's representative or trustee interest" is only a roundabout way of saying that the bailee may insure the bailor's interest.

ANOTHER restriction sometimes placed upon this type of insurance is that the bailee must have contemplated the bailor, that is, had him in mind as a beneficiary of the policy, when he procured the insurance. However, this does not mean that the bailee must have had in mind the specific person who happened to own the property when the loss occurred. It is sufficient to show that the bailee intended to protect not only himself but any persons who then or later might own the goods, and this intention will be readily inferred from any language in the policy which is broad enough to cover the bailor's interest.[35] It is also said that the bailor, where he has not previously authorized the bailee to insure for him, must "adopt" the policy procured by the bailee for his benefit; but this requirement does not give much trouble, since the bailor's act of claiming the insurance money, either from the bailee,[36] or from the insurer,[37] is sufficient. Indeed, in some important cases, the "contemplation" and "adoption" requirements are not alluded to.[38]

A more difficult question is, "What words in the policy issued to the bailee are sufficient to cover the interest of the bailor?" A complete enumeration of all the phrases which have been judicially construed would be beyond the limits of this paper; but some typical examples may be given. In marine insurance, the phrase "on account of whom it may concern" is commonly employed, and has been held to cover the bailor's interest in the goods, even though the bailee had no proprietary interest in the goods nor any legal liability for the loss which occurred.[39] This phrase is rarely used in fire insurance policies. By long standing usage, dating back perhaps a century,[40] the words "in trust" have been used to describe the bailor's interest under a policy procured by the bailee. While "in trust," technically construed, would apply only to a case where one party held the legal title "in trust" for another, who could enforce his claim only in a court of equity, the words have been given their ordinary, non-technical meaning and therefore include goods "entrusted" to the bailee, even though the bailee has merely possession and

25. Shaw v. Aetna Ins. Co., 49 Mo. 578 (1852) (river transportation); Wagner v. Westchester Fire Ins. Co., 92 Tex. 549, 50 S. W. 569 (1899); Citizens Ins. Co. v. Herpolsheimer, 77 Neb. 232, 237, 109 N. W. 160 (1906).
26. See the last sentence of the quotation from the opinion of Gray, J., *supra;* Shaw v. Aetna Ins. Co., *supra,* last note.
27. See the cases cited in notes 17, 18, 19, 22, and 25, *supra.* But see Citizens Ins. Co. v. Herpolsheimer, *supra,* note 25.
28. Home Ins. Co. of N. Y. v. Baltimore Warehouse Co., 93 U. S. 527, (at p. 542), 23 L. ed. 868 (1876); Waring v. Indemnity Fire Ins. Co., 45 N. Y. 606, 607 (1871); Fire Ins. Ass'n of England v. Merchants' and Miner's Transportation Co., 66 Md. 339 (347-350) (1887); California Ins. Co. v. Union Compress Co., 133 U. S. 387, 409, 33 L. ed. 730, 736, 10 Sup. Ct. 369 (1890); Home Ins Co. v. Peoria, etc. R. Co., 178 Ill. 64, 52 N. E. 862 (1899). See Johnson v. Campbell, 120 Mass. 449, 453, (1876); Brooklyn Clothing Co. v. People's National Ins. Co., 118 Misc. (N. Y.) 674, 195 N. Y. Supp. 27, S. C. 205 App. Div. 743, 747.
29. See Fire Ins. Ass'n. of England v. Merchants' and Miners' Transportation Co., *supra,* last note, p. 348.
30. See *ibid.*; Home Ins. Co. of N. Y. v. Baltimore Warehouse Co., *supra,* note 28; Johnson v. Campbell, *supra,* note 28.
31. See Murdock v. Franklin Ins. Co., 33 W. Va. 407, 412, 10 S. E. 77 (1889).
32. See Johnson v. Campbell, 120 Mass. 448, 453 (1876).
33. Symmers v. Carroll, 207 N. Y. 632, 101 N. E. 698 (1913) (marine insurance); Johnson v. Stewart, 243 Pa. St. 485, 90 Atl. 349 (1914) (fire insurance); Houston Canning Co. v. Virginia Can Co., 211 Ala. 232, 100 So. 104 (1924) (fire insurance); Roger Williams & Co. v. Auto Express Co., 78 N. J. Eq. 165, 78 Atl. 670 (1910).
34. Kellner v. Fire Ass'n. of Philadelphia, 128 Wis. 233, 106 N. W. 1060 (1906); Lewis v. Home Ins. Co., 110 Misc. (N. Y.) 592, 181 N. Y. Supp. 839 (1920). See Roger Williams & Co. v. Auto Express Co., *supra,* note 33; Houston Canning Co. v. Virginia Can Co., *supra,* note 33.
35. Waring v. Indemnity Fire Ins. Co. *supra,* note 28, contains a good discussion of this point; Fire Ins. Ass'n. of England v. Merchants' and Miners' Transportation Co., *supra,* note 28.
36. Johnson v. Stewart, *supra,* note 33.
37. This seems to be tacitly assumed in the cases cited *supra,* note 34.

(*For Notes 38-39-40 See Continued Page*)

Bailees

(*Continued from preceding page*)

not legal title.[41] Accordingly, this language has been construed broadly enough to cover the bailor's interest, under a policy procured by, and in the name of, the bailee, in fire insurance,[42] burglarly insurance,[43] and other forms of property insurance.[44] The phrase "and other owners as interest may appear" is obviously broad enough to cover the bailor's interest.[45]

THE practical utility of permitting the numerous classes of bailees to procure insurance for the benefit of their bailors has been demonstrated by long settled usage and custom. The bailee, being in possession of the goods, is usually better acquainted with the risks to which it is exposed than is the bailor, and is in a better position to inform the insurer as to the factors affecting the risk. He is also better able to control and reduce those risks, thus reducing the premium. He may conveniently insure, under a floating policy, all goods which come into his possession, and the insurance attaches automatically as soon as he gets the goods. The bailor, if at a distant city, may not be able to procure there a rate upon the bailee's warehouse or grain elevator, because the insurance maps and rates are kept in the city where the structure is located. For these reasons, the courts have construed the bailee's policy, wherever possible, to cover the interests of the bailor.[46]

On the other hand, the bailee may conceivably not wish to protect the bailor's interests. One reason which has been given is that the bailee may have taken out just enough insurance to cover the property which he owns outright, and if the bailor's property is also covered, the bailee will have to share his insurance *pro rata* with the bailor and thus not get full coverage.[47] While the New York court has denied the bailor any share where the bailee's loss on his own property exceeded the insurance proceeds,[48] and this conclusion seems in accord with the numerous statements of other courts,[49] in some jurisdictions it seems the bailor shares *pro rata* with the bailee,[50] and at all events, under some "co-insurance clauses" the bailee might suffer by including the bailor.

WHAT phrases, then, cover the bailee's interest, but not the bailor's? A steamboat company "for account of themselves" procured insurance on rolls of paper, described as owned by two paper companies; the policy did not cover the shipper's interest.[51] A railroad company which took out fire insurance on property held by it "as carrier or warehouseman," "attaching upon the property interests and legal liability of" the railroad company, covered only its proprietary and contingent liability interests, and left its shippers out in the cold.[52] In each of these cases the policy contained a clause, "loss, if any, payable to" the bailee, yet these words were insufficient to indicate that other parties were covered. A New York appellate court (not the highest, however) recently held, contrary to the opinion of the lower court, that the bailor's interest was not protected under a policy issued to the bailee (a clothing manufacturer) "on his (their) interest in his (their) legal liability for similar property held by him (them) as follows, viz.: In trust or on commission or in joint account with others or on storage or for repairs."[53] Here, the court said, the words "his interest in, and legal liability for" qualified what would otherwise be the effect of the words "in trust or on commission." Substantially this form has been urged as a desirable wording to cover only the bailee's interests.[54]

On the other hand, a carrier who took out fire insurance "on merchandise in transit. . . . and for which they are liable as common carriers," was held to have been a good angel for his shipper.[55] So, a terminal railroad which insured itself "on freight cars. . . ., the property of other roads. . . ., for which the assured are or may be liable, while on their line of road," conferred a kindly protection upon the owners of the freight cars.[56] These cases seem at first glance hopelessly in conflict with

(*Continued on page 29*)

38. Home Ins. Co., of N. Y. v. Baltimore Warehouse Co., *supra*, note 28; Roger Williams & Co. v. Auto Express Co., *supra*, note 33; Kellner v. Fire Ass'n. of Philadelphia, *supra*, note 34; Lewis v. Home Ins. Co., *supra*, note 34.
39. Fire Ins. Ass'n. of England v. Merchants' and Miners' Transportation Co., *supra*, note 28.
40. See Waters v. Monarch Fire & Life Assurance Co., 5 Ell. Bl. (Eng.) 870 (1856); Stillwell v. Staples, 19 N. Y. 401 (1859).
41. Waters v. Monarch Fire & Life Assurance Co., *supra*, last note, at p. 880; Home Ins. Co. of N. Y. v. Baltimore Warehouse Co., *supra*, note 28, at p. 543.
42. Cases cited in last note, and: Waring v. Indemnity Ins. Co., 45 N. Y. 606 (1871) ("their own, or held by them in trust or on commission, or sold but not removed"); Lewis v. Home Ins. Co., 110 Misc. 592, 181 N. Y. Supp. 839 (1920) (same clause); California Ins. Co. v. Union Compress Co., 133 U. S. 387, 409, 33 L. ed. 730, 10 Sup. Ct. 369 (1890) ("their own or held by them in trust or on commission"); Johnson v. Campbell, 120 Mass. 449 (1876) (same clause). Johnson v. Stewart, 243 Pa. St. 485, 90 Atl. 349 (1914) ("their own or held by them in trust or on consignment") See Stillwell v. Staples, *supra*, note 40.
43. General Accident Fire & Life Ins. Corp. v. Stratton 165 Ky. 754, 178 S. W. 1060 (1915) ("held by him in trust or on commission").
44. See *dictum* in Brooklyn Clothing Co. v. Fidelity-Phoenix Ins. Co., 205 App. Div. 743, 747 (1923), a case of insurance against "riot or civil commotion."
45. Kellner v. Fire Association of Philadelphia, *supra*, note 34. So, insurance by a charterer "on account of steamboat Charleston and owners" was held to cover the bailors "owners"). Murdock v. Franklin Ins. Co., 33 W. Va. 407, 10 S. E. 777 (1889).
46. See the argument of the highest court of New York in favor of the practical utility of such policies, in Waring v. Indemnity Ins. Co., *supra*, note 42, at p. 609.
47. This argument was advanced by Mr. W. N. Bament, General Adjuster of the Home Insurance Co., in an address entitled "Forms—from the Company's Standpoint," delivered before the Insurance Society of New York, February 20, 1912 (p. 3). He speaks of "some jurisdictions" where this holds true, but cites no authorities.
48. Stillwell v. Staples, *supra*, note 40.
49. "And in case of loss (the bailees) may recover the full amount of insurance, for the satisfaction of *their own claims first*, and hold the residue for the owners." Strong, J., speaking for the United States Supreme Court, in Home Ins. Co. of N. Y. v. Baltimore Warehouse Co., *supra*, note 41, at p. 543.
50. Boyd v. McKee, 99 Va. 72, 37 S. E. 811 (1901)
51. Willamette Navigation Co. v. Hartford Fire Ins. Co., 287 Fed. 464 (C. C.A. 1923). (And see dictum in Home Ins. Co. v. Peoria, etc. Rway. Co., *infra*, note 56, at p. 69).
52. Washburn-Crosby Co. v. Home Ins. Co., 199 Mass. 463, 85 N. E. 592 (1908). The fire occurred while the goods were in warehouse, and the railroad company was not liable to the shippers.
53. Brooklyn Clothing Co. v. Fidelity-Phenix Ins. Co. 205 App. Div. 743, 200 N. Y. Supp. 208 (1922), reversing Same v. People's National Fire Ins. Co., 118 Misc. 674, 195 N. Y. Supp. 27 (1922)
54. By Mr. Bament, in the address cited *supra*, note 47. He suggests this wording: "On merchandise his own, and on his interest in and on his legal liability for property held by him in trust or on commission or on joint account for others, or sold but not removed, or on storage or for repairs."
55. Roger Williams & Co. v. Auto Express Co., *supra*, note 33
56. Home Ins. Co. v. Peoria & Penkin Union Rwy. Co., 178 Ill. 64, 52 N. E. 862 (1899)

Rainfall Hazard

(Continued from page 15)

four seasons of winter, spring, summer and autumn.

THE amount of heat in the sun's rays or sunbeams is always constant. This invariable amount is distributed over a larger surface, according to the altitude of the sun. Hence, in a winter's day, when the sun, even at noon, is low each square mile of soil receives less heat than comes to it in summer, when the sun is high. The sun's rays are inclined to the soil at very different angles on different dates, the amount of heat received per square mile varies accordingly. Not only is less heat per square mile received in December than in June, but it is received for a shorter period. In latitude 45 the sun is above the horizon for about 15½ hours on June 21st, while on December 22nd it is above the horizon for a little more than 8½ hours.

There are two reasons, then, for the change of seasons: first, the duration of the sunshine is longer on some dates than at others; second, the amount of the sun's heat, received per square mile, per hours is greater on some dates than at others. The rotation of the earth carries an observer round his own parallel of latitude. He should observe whether his days are longer or shorter than his nights. Also how the altitude of the sun varies at different seasons of the year. An observer on the earth's equator has his days and nights of equal length, no matter what the season of the year. The sun is always in the zenith to some observer in the earth's torrid zone.

The following points concerning weather insurance are to be derived from this discussion:

1. In aviation insurance the hazards cover not only the plane, but the pilot; also the cargo of whatever nature.

2. It is shown that the weather hazards affecting aviation are in the main concerned with the technical training of the pilot as to his practical knowledge of atmospherics a. plied to flying.

3. Has the plane been constructed and equipped to withstand the weather strains of the charted course over which it is to fly?

4. The character and degree of the experience of the pilot, and the preparation and completeness of his plans for the flight in contemplation. The thoroughness of all tests and trials for the undertaking in hand.

5. It is apparent that weather changes and the hazards associated therewith are closely related to the astronomical problems of the axial and orbital movements of the earth in relation to the sun.

6. The causes of the formation of the seasons and their variations as affecting weather changes, in relation to the occurrence and distribution of precipitation must be studied from an astronomical point of view.

7. In a thorough study of THE RAINFALL HAZARD the origin of related weather changes must be traced back to primary causes in solar revolution and solar radiation.

8. The periods of active, insolation and the relation of concurrent atmospheric phenomena on the earth, require investigation to develop the circumstances of the origin and movement of storms on the earth's subdivisions of land and water areas.

9. Differences of climate and in the forward or backward state of vegetable life, in part dependent upon local conditions, have lead to different divisions of the calendar months among the seasons, varying quite in-

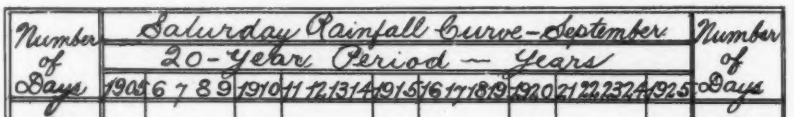


PLATE No. XI.—Daily rainfall curve---September. For the crucial-7-hour hazard 2 P.M. to 9 P.M. and the cruical-wetting-loss-hazard of a tenth of an inch or more.

REMARKS

The days and years of no rainfall are indicated by the horizontal intervals between the circular dots (●) marking the sections of the curve-graph lines. Horizontal amplitude shows yearly range and variation. Vertical amplitude shows daily range and variation.

September indicates the passing from summer weather types to autum weather types and the effect of the introducion of the West Indian Hurricane Season.

See Note A—Plate VIII

dependently to the latitude. Great Britain's spring begins in February, its summer in May, its autumn in August and its winter in November. Toward the equator the difference of season is less pronounced because the annual variation of the sun's meridian altitude is less. As changes in rainfall are more marked than those of temperature, the seasons are known as dry and rainy rather than hot and cold. These marked differences of season are recognized by the division of the earth's surface into five climatic zones.

10. It is plainly evident from the foregoing analysis and discussion of atmospheric and astronomical data, and their correlation that weather hazards must be placed on a fundamental basis that will permit of the thorough and exclusively scientific rating of all weather hazards.

11. Our earth in traveling round the sun preserves its axis, not only at a constant angle to the plane of its orbit, but always for a limited period of years pointing to nearly the same part of the heavens. Plainly, then, the seasons of the southern hemisphere must occur in just the order of our seasons in the northern hemisphere. In its turn the south pole inclines just as far toward the sun as does the north pole. But, in so far as astronomical conditions are concerned, the southern seasons will be displaced just six months of the calendar years from those occurring in the northern hemisphere. Midwinter in the southern hemisphere comes in June and July, and Christmas falls in midsummer. The opening of their spring comes in August and September, and autumn approaches in February and March. But while in the northern hemisphere the difference between the heat of midsummer and the cold of midwinter is somewhat lessened by the changing distance of the sun; in the southern hemisphre, this effect is intensified, because the earth comes to perihelion in the southern midsummer. However, on account of the swifter motion of the earth, from October to March, then from April to September, the southern summer is enough shorter to compensate for the sun's being nearer, so that the southern summer is practically no hotter than the northern. On the other hand the southern winter not only lasts about seven days longer than the northern, but is colder also, because the sun is then farthest away. The range of difference in the heat received at perihelion and aphelion is about 1/15 part of the total amount.

Bailees

(Continued from page 27)

the New York and Massachusetts cases cited above. Yet the decisions can be intelligibly harmonized if one sees in such a phrase as "property . . . for which the insured are, or may be, liable," a description of the *physical objects* covered by the policy but no limitation of the *interests* covered or of the *causes of loss* (negligent or non-negligent fires). The general principle which the courts follow is that the bailor is covered whenever the language is susceptible of that construction.

OF the fire insurance riders which have come to the writer's attention, the warehouse form in current use in New York City contains the clause, "the property of the insured (bailee) or held by said insured in trust or on commission or sold but not delivered." This rider, under the cases cited,[57] clearly covers the owner of the goods in warehouse. A warehouse rider in common use on the Pacific Coast is more ambiguous: "and (*provided* the insured shall be liable for law for loss or damage thereto or shall have specifically assumed liability therefor) this insurance shall also cover the above described merchandise held in trust, or on commission, or left for storage." Under the reasoning suggested above, this language covers the bailor, since the "provided" clause is merely a description of the *physical objects* insured, and not a limitation on the normal meaning of "in trust or on commission," which ordinarily covers the interest of the bailor.[58] However, the exact scope of coverage is of too much importance to be thus left in doubt, and the form should be made clearer.

INSURANCE by the bailee, not only of his own proprietary and contingent liability interests, but also of the bailor's interest, is a desirable practice, and the courts tend to encourage it. It is good for the bailees, who may thus avoid ruin from a catastrophe to which all their competitors are exposed, but which few of them suffer. It will encourage bailees to reduce their fire risks (in order to get lower insurance rates) thus benefitting the public at large by reducing the conflagration hazard in crowded urban centers. It is good for the bailors, who find it difficult or impossible to obtain adequate protection on their merchandise moving through market channels. It will increase the use of insurance as a protective social institution, thereby benefitting the community in general, and insurers in particular. The latter should, therefore, in their own enlightened self-interest, as well as in the interests of the public whom they serve, strive to make this type of coverage as clearly expressed and as readily available as possible, and to devise adequate safeguards for the abuses, if any, which may arise in connection with its use.

57. *Supra,* notes 40 to 43, inclusive

58. In Home Ins. Co. v. Peoria, etc., Rwy. Co., *supra,* note 56, the court said that "liable" meant merely a *possible* duty (of the bailee) to pay for the loss of the freight cars. An endorser of a note is "liable" on it, though he may never have to pay it.

New Honor for Burton S. Flagg

BURTON S. FLAGG, President of the Federation of Mutual Fire Insurance Companies, and head of various large insurance organizations was elected Chairman of the Board of Commissioners of the American Mutual Alliance at the recent annual meeting of that body.

Life Lights

(Continued from page 19)

rived. I buy all these things myself. I wrap them up myself. I write a little card for each member of my family. I have to get a new photograph and a new list of names every November—altho I know many of them without the list. Then about December 23 I disappear. I suppose my acquaintances think I have gone off to nurse my constitutional grouch against humanity. But if they could pull the white whiskers off a certain jolly old boy in a red jacket who is having the time of his life with a score of happy youngsters they would probably expire from the shock of discovery. That is how I make Christmas mean something for me."

I left him sticking a "Not to be opened until" label on a gay little package containing a pair of lovely red and white woolen mittens—the happiest man at the moment I had ever seen.

New York Superintendent's Report to Legislature

STATE superintendent of Insurance James A. Beha is issuing the third and fourth volumes of his 1927 report to the Legislature.

The third volume embraces abstracts and tables covering the 1926 business of casualty companies and carries an appendix with the insurance laws of 1927 and abstracts of Court of Appeals decisions and of reports on Examination of Companies for the year ended July 1, 1927.

The 108 stock and mutual casualty companies authorized in New York on January 1, 1927, showed assets of $967,314,153, a gain for 1926 of $116,512,100.

The net surplus was $162,382,975, a gain of $30,812,614; capital $121,369,550, a gain of $13,044,550.

The total income was $727,006,199, an increase for 1926 over 1925 of $76,282,176, and the total premiums were $663,898,446, an increase of $61,806,076.

The larger premiums items, as compared with 1925, are:

	1925	1926
Workmen's compensation	$161,186,759	$181,396,283
Auto liability	115,338,391	130,354,748
Fidelity and surety	86,803,506	90,724,345
Accident and health	75,864,593	79,015,885
Auto property damage	51,244,793	57,423,854
Liability other than auto	48,928,974	59,727,747
Burglary and theft	28,255,047	30,622,969

The disbursements for 1926 were $633,625,035, of which $290,111,565 was for losses and $51,184,921 for investigation and adjustment of claims.

Premiums received in New York State were $185,801,604; loss claims paid, $78,768,799.

The casualty companies under view made a net gain from underwriting in 1926 of $4,197,053 and a net gain in surplus of $33,978,508.

The 28 title and mortgage companies reporting show assets of $222,142,755; liabilities, $70,966,436; income, $61,606,173; disbursements, $39,651,619. Six of these companies were organized during the year 1926.

Volume four of Superintendent Beha's report covers assessment life associations, fraternal orders and cooperative fire companies.

Seventeen assessment life associations report for January 1, 1927, assets $9,651,105; liabilities, $7,077,862. Nearly one-half are on a tabular reserve basis.

There were 84 fraternal orders reporting assets of $533,741,009, a gain of 3 orders and of $75,130,193 in amount of assets.

Cooperative fire companies, including advance premium, county and town, number 167, and show assets of $3,816,673, income of $4,927,304, losses paid $2,593,111. The risks in force were $920,482,866.

The data given herewith, combined with fire, marine and old-line life insurance, shown in volumes one and two of the Insurance Department report for 1927, make aggregates as follows:

There were at the end of 1926 active organizations reporting to the New York Department to the number of 811, with assets of over fifteen billions of dollars, liabilities of over twelve and one-half billions, capital of close to four hundred and fifty millions, surplus of close to two billions, and having risks in force of close to 278 billions over and above annuities, pensions and the casualty lines.

BITS OF WIT

Thumbs Down

Lawyer: "Madam, you lost your thumb in a trolley accident, but how can you prove it worth the $3,000 you have sued the company for?"

Lady Plaintiff: "It was the thumb I kept my husband under."

Bachelor's Soliloquy

To wed or not to wed,
That is the question:
Whether 'tis better
To remain single
And disappoint a few women,
Or to marry
And disappoint one woman
For life—should give us pause.

No Freedom

A traveler in the South chatted with an aged Negro, whom he met in the road.

"And I suppose you were once a slave?" he remarked.

"Yes, suh," the old colored man answered.

"And, so after the war, you gained your freedom," the gentleman continued.

But the ancient one shook his head sadly.

"No, suh," he declared with great emphasis. "Not perzactly, suh. I didn't git mah freedom, suh, after de war—I done got married!"

Budding Entomologist

Mother: "Why is baby crying?"

Nurse (in next room): "He wants—"

Mother: "Well, give him what he wants."

The baby howls louder.

Mother: "Why didn't you give him what he wanted?"

Nurse: "I did. It was a bee!"—*Karikaturen (Oslo).*

Not All There

Lawyer—"Was the man you found under the street car a total strangr?"

Witness (who had been told to be careful)—"No, sir, his arm and leg were gone; he was only a partial stranger."—*Bucknell Belle Hop.*

Again the Scotch

He: Dear, I don't think I'll be home for dinner tonight.

She: No? What will I do?

He: If I change my mind, I'll call you on the 'phone at six, but don't answer, then I'll get my nickle back.

Health

Visiting Doctor: How is it Sambo, that you and your large family keep so healthy?

Sambo: "Well, suh. Ah tell you: we've done bought one of dose sanitary drinkin' cups, an' we all drink outen it."

Silver Digger

Eeny—"He uses the touch system."

Meeny—"On the typewriter?"

Eeny—"No, on his friends."—*U. of Wash. Columns.*

In the Radio Store

"My room is so stuffy, I'd like to buy a fan, please," said a woman customer one very hot day.

"What kind of a fan?" asked the clerk.

"Why, I think I'd like a radio fan," she replied.

Object Lesson

Mae: So Freddie is teaching you baseball?

Rae: Yes, and when I asked him what a squeeze was, I think he put one over on me.

Budding Journalist

Mother: "Well, really, Michael, the fog is so thick I am afraid we must give up the idea of going to the Zoo."

Michael: "Oh, Mother, we simply must go. I've put it down in my diary that we went."—*Punch.*

Boomerang

Browne: "Did you give your wife that little lecture on economy you talked about?"

Baker: "Yes."

"Any result?"

"Yes—I've got to give up smoking."—*Answers.*

Fires In Wet Hay

DEAN J. L. HILLS, College of Agriculture, University of Vermont, and other State officials, recently requested the U. S. Department of Agriculture to make a study of hay fires in the barns in the flooded regions. David J. Price, Engineer in Charge of the Chemical Engineering Division, and Dr. L. H. James, Associate Bacteriologist in the Bureau of Chemistry and Soils, of the Department, were detailed to make special investigations.

These experts found that receding waters in the Winooski, Lamoille and Missisquoi River Valley had left a great deal of hay in a very wet condition subject to quick heating. One barn fire near Middlesex was caused by "spontaneous combustion" of the hay, and the barn, with its entire contents, including 14 head of cattle, was lost.

In many instances it was necessary to remove the hay from the barns, while in other cases a careful watch was maintained over heated areas. Special studies were made to secure data relative to conditions under which the hay would heat and reach conditions favorable to spontaneous ignition, and efforts to develop control methods were also undertaken.

Observations made by the department representatives indicate definitely the need for further research and experimentation to determine the factors contributing to spontaneous combustion of hay in barns, and for the development of further control methods.

West Virginia Mutual Meeting

EIGHT W. Va. mutual fire insurance companies representing approximately fifty millions of insurance sent delegates to their annual meeting at Clarksburg, W. Va., on November 15th at the regular time and the program included the following:

Our New Mutual Insurance Legislation, Sen. Blaine Engle, Special Agent Mutual Fire Ins. Co. of W. Va.

Important Features of the Washington Convention, L. G. Wilson, Supt. of Agents, Municipal Mutual Ins. Co. of W. Va.

Address, D. C. Bundy, Representing the National Association of Mutual Fire Ins. Cos.

Discussion followed each address. Considerable interest was shown to the explanation of the reinsurance plan for farmers mutuals now being used by the Iowa Farmers and it is possible that effort will be made to organize a reinsuring association in West Virginia.

The Farmers Home Insurance Co. of Lewisburg, W. Va., was admitted to membership in the Association.

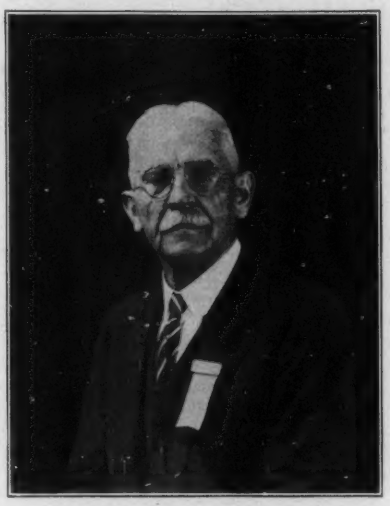
Officers re-elected of the association for the ensuing year:

C. D. Conaway, President, Fairmont, W. V.

Blaine Engle, Vice-President, Clarksburg, W. Va.

J. A. Gist, Sec'y.-Treas., Wellsburg, W. Va.

George H. Thigpen Alabama Commissioner



GEORGE H. THIGPEN

GEORGE H. THIGPEN, recently appointed Insurance Commissioner of the State of Alabama has had an interesting career.

For thirty years Mr. Thigpen was connected with the public schools of his state, and was widely known as an educator. He was a member of the legislature of 1898 which called the constitutional convention and for the past several years has been superintendent of the Masonic Home of Alabama. His work in all these capacities has met with remarkable success.

To the position of Insurance Commissioner he brings a naturally keen mind, a capacity to handle the intricacies of big problems, and a judicial temperament which can weigh all sides of a question. The world of insurance is glad to see him at the head of the Department in Alabama.

Casualty Actuarial Society Meets

THE Casualty Actuarial Society held its twenty-ninth regular meeting at the Hotel Biltmore, New York City on November 15th. Officers elected included:

President: Sanford B. Perkins, Asst. Secretary, Travelers. Vice President: George D. Moore, Asst. Secretary and Actuary, Royal Indemnity. Vice President: Thomas F. Tarbell, Actuary, Compensation and Liability Department, Travelers. Secretary-Treasurer: Richard Fondiller, Woodward, Fondiller & Ryan, Consulting Actuaries. Editor: Robert J. McManus, Assistant Statistician, Compensation and Liability Department, Travelers. Librarian: William Breiby, Fackler and Breiby, Consulting Actuaries.

Members of the Council chosen to serve three years were: Roy A. Wheeler, Vice President and Actuary, Liberty Mutual; William M. Corcoran, Actuary, Connecticut Insurance Department and Everett S. Fallow, Actuary, Accident Department, Travelers.

Seventy members were present, this being the largest attendance in the Society's history. The prize of $50 which had been donated by J. H. Woodward of Woodward, Fondiller & Ryan, for the best paper by a member of the Society during the past year was awarded to Paul Dorweiler, of the Aetna Life Insurance Company, for his paper on "Excess Reinsurance."

Crop Hazards Insurance

(Continued from page 24)

limit was sufficiently conservative. The data relate to the state as a whole and not to individual farms or even to as small units as counties. To properly measure the hazard insured, one would have to have yearly experience covering a series of years for small areas. Data of this kind was not then available nor is it now available. There is reason to believe also that the farms covered were in many instances those of low yield and high frequency of crop damage from drought or hail.

(Article II to follow will present recent experiments in crop insurance.)

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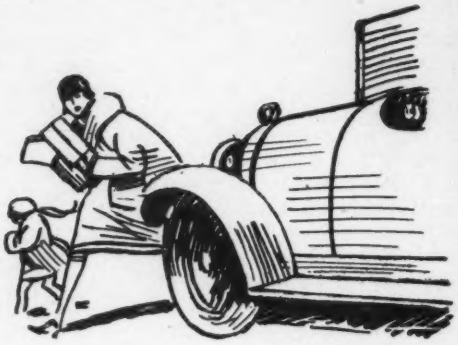

The records of Traffic Courts and Insurance Companies reveal some funny facts.

One of them is startling. It probably never occured to you that a great many accidents happen **between street intersections!**

People naturally pick up speed between street intersections and slow d o w n at crossings. And where they're moving fast is where the accidents occur.

Folks step out from between cars that are parked on the side of the street—children leap into the road whenever the impulse stirs them. It's the unexpected that causes accidents.

So now that you know the danger zone that exists between street intersections, you'll expect everything. And expecting everything, you'll be careful—that will help reduce the number of accidents.

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STEVENS POINT, WISCONSIN

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Combined Statement
June 30, 1927

Assets	$8,654,446.38
Liabilities	5,549,795.48
Surplus	3,104,650.90

Dividends Returned to Policy Holders
Since Organization . . . $21,639,703.73

FEDERAL HARDWARE *and* IMPLEMENT MUTUALS

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Fire Insurance Co.
Owatonna, Minnesota

Retail Hardware Mutual
Fire Insurance Co.
Minneapolis, Minnesota

Hardware Dealers Mutual
Fire Insurance Co.
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Departments
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